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Research Article

Analysis on the Application of Dependent Information System Optimization Algorithm in Music Education in Colleges and Universities

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Although the influence of pop music is huge and the emergence of pop music talents is also increasing, its education has great problems. Moreover, both theoretical research and professional discipline construction are still very backward. In order to improve the efficiency of music teaching in colleges and universities, this paper applies the information system optimization algorithm to the intelligent analysis of music education in colleges and universities, selects the appropriate method for music information processing, and builds the music education system in colleges and universities on this basis. At the same time, this paper compiles a music system questionnaire for the two main groups (teachers and students) who use the music system to understand the needs of teachers and students for the music system. Then, this paper analyzes the feasibility of the system, constructs an intelligent music education system in colleges and universities, and verifies the effect of the system in combination with experiments. In addition, this paper evaluates the music information processing and educational effect of the system in combination with the actual situation and counts the test results. The test results verify the reliability of the system in this paper.

1. Introduction

As a special education subject, music courses play an irreplaceable role in the first and second classrooms on campus. On the road, people's pursuit of spirituality is getting higher and higher, and the country's demand for talents is also getting higher and higher. Music cannot only cultivate sentiment but also promote the all-round development of talents in the new era. There are still many problems in public music education in colleges and universities. If we want to solve the problem from the root, we need to update the educational concept, change the teaching thinking, adjust the teaching method, and build the curriculum system, so that students can receive the baptism of music in a relaxed and pleasant classroom environment [1].

Due to the characteristics of exam-oriented education, the school trains students in a way that emphasizes performance and neglects quality. This kind of education directly leads to the low level of students' basic music literacy and weak music foundation, when setting up the public curriculum system, and the courses should be mutually connected and independent, so that students of different levels can choose courses freely. After the 19th National Congress of the Communist Party of China, the country increased its investment in aesthetic education, and memorandums on aesthetic education were issued in various places. As a higher education institution, how to set up public music courses in universities has become a problem that we urgently need to solve [2]. After investigating and interviewing colleges and universities and searching for books and materials, this paper believes that we should continue to offer multiple types of public music courses on the basis of the original courses in accordance with the training goals and student needs and build a horizontal and vertical curriculum system based on the original curriculum that combines online and offline, in-class, and extra-curricular and promotes ability and interest, so as to improve students' aesthetics and improve their comprehensive quality [3].

Today's popular music education is derived from Western music education ideas and curriculum systems. It has had a profound impact on popular music education. Popular music related disciplines have just been established in colleges and universities, and they have two major characteristics: First, the music industry has not yet reached a consensus on the connotations and categories of the names of schools and majors, such as the definition of popular music and modern music. Different understandings of names have formed a variety of educational positioning in colleges and universities. Secondly, in terms of popular music teaching content, teachers continue to use traditional teaching methods, training goals, and syllabus. They still use Western music education content and popular music teaching. There is a big gap between the content and the social practice of popular music. The establishment of the discipline promotes the gradual scientific and standardization of the professional direction of popular music. On the whole, the current popular music singing direction generally includes popular music singing, musical performance, pop song and dance, etc.; popular music performance includes jazz performance, synthesizer and electronic keyboard performance, saxophone performance, etc.; popular music creation includes composition, sound director, recording engineering, etc.; and popular music theory includes popular music history research, criticism and commentary, etc., which marks the gradual completion of the popular music major. Although the influence of popular music is huge, and there are more and more pop music talents, there are big problems in its education. Both theoretical research and professional discipline construction are still very backward.

With the support of information technology, this paper improves the college music education method, improves the traditional teaching mode, and improves the effect of college music education.

2. Related Work

From the perspective of student types, music education is divided into professional music education and nonprofessional music education. Professional music education refers to the training of professional talents based on certain skills for students in music schools, music departments, etc., which is what we call "students"; nonprofessional music education refers to the training of students with certain music appreciation and students of nonmusic-related majors [4]. Subject class students usually have a certain musical quality foundation and can be proficient in one or more professional music skills, such as one of vocal music and instrumental music. Schools usually have a unified curriculum and training plan for such students. Professional planning courses, such as basic music theory, harmonic acoustics, music history, and composition, will be incorporated in the teaching [5]. Nonprofessional students usually have no or less professional foundation and have great interest in music. Schools usually carry out teaching in the form of elective courses. The teaching will incorporate courses such as song appreciation, symphony appreciation, and music history. This type of education is mostly based on appreciation [6]. In recent years, with the extensive development of quality education across the country, the status of music education has become more prominent among colleges and universities. At present, in addition to professional music colleges, all major comprehensive colleges and universities across the country have also rushed to develop music education. Majors and music education in comprehensive universities is not limited to music majors. The extensive development of school music courses also provides a good learning environment for nonmajor students, making them extremely intensive in their studies. It has greatly enriched one's own quality. Although in the face of a large educated group, the music elective course cannot be smoothly entered into the study and life of every student, but in colleges and universities across the country, there are more and more students who like music learning. There are more and more schools offering music elective courses. From a quantitative point of view, it is already a thriving and beautiful scene [7].

The development of music education in colleges and universities has experienced many twists and turns and has been troubled by countless mysteries. Today, more and more scholars and people in the education industry are paying close attention to this field, and countless voices are talking about colleges and universities, with suggestions on the development of music education. Some start with music education methods to conduct research on music education classrooms, some analyze them from the characteristics of music education, and some conduct cross-comparison studies with music education theory and other disciplines. In short, their opinions on the development of music education in colleges and universities and suggestions are becoming more and more diversified, and more and more scholars are speaking out [8]. As British music educator Swanick said: even those who deny that they are music educators can hardly avoid serving the purpose of education [9]. Today, music education has been ubiquitously affecting our lives, and music-related activities have covered educational intentions [10].

As an important type of higher education, local colleges and universities not only undertake the important task of cultivating high-quality talents but also shoulder more important social responsibilities. It is the current place to actively intervene in local basic education and promote the development of basic education by leaps and bounds and one of the indispensable contents in college education activities [11]. Literature [12] takes the rural areas where basic education is relatively weak, combines the specific practice of Hubei Institute of Science and Technology in serving the rural basic education of Xianning City, and discusses the role of college social services in promoting the construction and development of rural schools and promoting the healthy growth of rural left-behind children and the role and value to the development of universities themselves. Literature [13], while noting the important role of local colleges and universities in serving rural basic education, also pointed out some objective problems in the current local colleges and universities serving rural basic education, such as the lack of institutional mechanisms and weak service levels, and then from both internal and external perspectives, gave targeted recommendations, specifically, the need to establish a linkage mechanism with local governments, while further improving the social service mechanism. Local colleges and universities serve basic education. The beneficiaries are not only basic education, but colleges and universities can also get a lot of benefits from it. This is essentially a win-win cooperation. The literature [14] believes that the so-called coordinated development of local colleges and universities and basic education requires the formation of a development community between local colleges and local governments and elementary and middle school members, establishing common goals, and continuously working to promote the training of higher education personnel and local basic education. The overall quality improvement is the fundamental goal. This kind of coordinated development model provides mutual benefits for both parties. This has a very good inspiration for the exploration of the cooperation model of this subject, especially the cooperation concept.

3. Information System Optimization Algorithm Based on Machine Learning

Decision tree is a decision analysis method based on knowing the probability of occurrence of various situations, by forming a decision tree to calculate the probability that the expected value of net present value is greater than or equal to zero, evaluate the project risk, and judge its feasibility.

The decision tree is based on "purity" to determine whether the requirements are met. There are three methods for calculating purity. First, if the records are divided into n categories, the proportion of each category $P(i)$ = the number of the ith category/the total number n, then the following three formulas are used to measure [15]

(1) Gini impurity

$$Gini = 1 - \sum_{i=1}^{n} P(i)^2 \tag{1}$$

(2) Entropy

$$Entropy = \sum_{i=1}^{n} P(i) * \log_2 P(i) \tag{2}$$

(3) Error

$$Error = 1 - \max \{P(i) | i \in (1, n)\} \tag{3}$$

The smaller the value obtained by the above formula, the higher the purity of the decision tree, and vice versa, the lower the purity. Practice has proved that the choice of the three formulas has little effect on the final classification accuracy, so only one of the three formulas can be selected, and the entropy formula is generally used.

The difference in purity is also called information gain, and the formula is as follows:

$$\Delta = I(parent) - \sum_{j=1}^{k} \frac{N(v_j)}{N} * I(v_j). \tag{4}$$

Among them, I represents impurity (it can be any one of impurity, righteousness, and error rate), generally takes $K = 2$. v_j represents the node. The above formula is actually the weighted average of the impurity of the current node minus the impurity of the child nodes, and the weight is determined by the ratio of the number of child node records to the number of records of the current node.

3.1. Stop Condition. The accuracy p of T exists objectively, and the probability distribution of X is $X \sim B(N, p)$, that is, the follow probability is p. For binomial distribution with degree N, the expectation is $E(X) = N * p$, and the variance is $\mathrm{Var}(X) = N * p * (1 - p)$.

The confidence interval of the normal distribution is solved as follows:

(1) The algorithm standardizes Acc, namely

$$Z = \frac{(ACC - p)}{\sqrt{p * (1 - p)/N}} \tag{5}$$

(2) The algorithm chooses the confidence level α, and usually $\alpha = 95\%$ [16]

(3) The algorithm calculates the statistics $Z_{\sigma/2}$ and $Z_{1-\sigma/2}$ of the standard normal distribution corresponding to $\alpha/2$ and $1 - \alpha/2$, which are all constants. Then, the algorithm solves the inequality of formula (6) with respect to p. Acc can be estimated from the sample, that is, the execution interval of p can be obtained

$$-Z_{\sigma/2} \le \frac{(Acc - p)}{\sqrt{p * (1 - p)/N} \le Z_{1-\alpha/2}} \tag{6}$$

$G = (L, E)$ represents a directed acyclic graph, where I represents the set of all nodes in the graph, and E represents the set of directed connection [17]:

$$p(x) = \prod_{i \in I} p\left(x_i \middle| x_{pa(i)}\right) \tag{7}$$

The joint assignment:

$$P(X_1 = x_1, \cdots, X_n = x_n) = \prod_{i=1}^{n} (X_i = x_i | X_{i+1} = x_{i+1}, \cdots, X_n = x_n) \tag{8}$$

According to the above formula, the Bayesian network as [18]

$$P(X_1 = x_1, \cdots, X_n = x_n) = \prod_{i=1}^{n} \left(X_i = x_i \middle| X_f = x_j\right) \tag{9}$$

The difference between the above two expressions lies in the part of conditional probability. In a Bayesian network, if its "dependent" variable is known, some nodes will be conditionally independent from its "dependent" variable, and only nodes related to the "dependent" variable will have conditional probability. If the number of dependencies in joint allocation is small, the Bayesian function method can save a lot of memory capacity. Moreover, it is easier to know whether the variables are conditionally independent or dependent and their local allocation type to obtain the joint allocation of all random variables.

(1) Topological structure of BP neural network model as shown in Figure 1. The relationship between input and output when using the sigmoid function is as follows:

The input is [19]

$$net = x_1 w_1 + x_2 w_2 + \cdots + x_n w_n \tag{10}$$

The output is

$$y = f(net) = \frac{1}{1 + e^{-\pi et}} \tag{11}$$

(2) The algorithm randomly selects the kth input sample and the corresponding expected output

$$\begin{aligned} \vec{x}(k) &= (x_1(k), x_2(k), \cdots, x_n(k)) \\ \vec{d_o}(k) &= \left(d_1(k), d_2(k), \cdots, d_q(k)\right) \end{aligned} \tag{12}$$

(3) The algorithm calculates the input and output of each neuron in the hidden layer

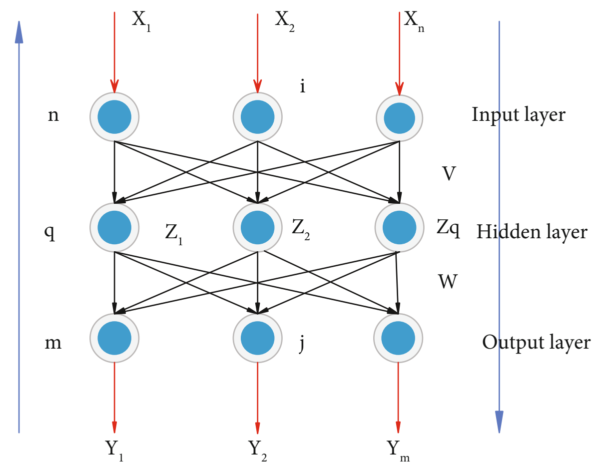

Figure 1: Topological structure of BP neural network model.

$$\begin{aligned} hi_h(k) &= \sum_{i=1}^{n} w_{ih} x_i(k) - b_h, \quad h = 1, 2, \cdots, p \\ ho_h(k) &= f(hi_h(k)), \quad h = 1, 2, \cdots, p \\ yi_h(k) &= \sum_{h=1}^{p} w_{ho} ho_h(k) - b_o, \quad 0 = 1, 2, \cdots, q \\ yo_o(k) &= f(yi_h(k)), \quad 0 = 1, 2, \cdots, q \end{aligned} \tag{13}$$

(4) The algorithm calculates the partial derivative t of the error function to each neuron in the output layer according to the expected output and actual output of the network

$$\begin{aligned} \frac{\partial e}{\alpha w_{ho}} &= \frac{\alpha e}{\alpha yi_o} \frac{\alpha yi_o}{\alpha w_{ho}} \\ \frac{\alpha yi_o}{\alpha w_{ho}} &= \frac{\alpha\left(\sum_h^p w_{ho} ho_h(k) - b_0\right)}{\alpha w_{ho}} \\ \frac{\partial e}{\partial yi_o} &= \frac{\partial\left(1/2 \sum_{o=1}^{q} (d_0(k) - \mathrm{to}_o(k))\right)}{\partial yi_o} = -(d_o(k) yo_o(k)) y_o(k) \end{aligned} \tag{14}$$

(5) The algorithm calculates the error function and the partial derivative $\delta_h(k)$ of each neuron in the hidden layer according to the connection weight of the hidden layer to the output layer, the $\delta_0(k)$ of the output layer, and the output of the hidden layer

$$\frac{\partial e}{\alpha w_{ho}} = \frac{\alpha e}{\alpha yi_o}\frac{\alpha yi_o}{\alpha w_{ho}} = -\delta_o(k) go_h(k)$$
$$\frac{\partial e}{\alpha w_{ih}} = \frac{\alpha e}{\alpha hi_h(k)}\frac{\alpha hi_h(k)}{\alpha w_{ih}}$$
$$\frac{\alpha hi_h(k)}{\alpha w_{ih}} = \frac{\alpha\left(\sum_{i=1}^{n} w_{ih}x_i(k) - b_h\right)}{\alpha w_{ih}} = x_i(h) \tag{15}$$
$$\frac{\partial e}{\partial hi_h(k)} = \frac{\partial\left(1/2\sum_{o=1}^{q}(d_0(k) - yo_o(k))^2\right)}{\partial ho_h(k)}\frac{\partial ho_h(k)}{\partial hi_h(k)} = \frac{\partial\left(1/2\sum_{o=1}^{q}(d_0(k) - f(yi_o(k)))^2\right)}{\partial ho_h(k)}\frac{\partial ho_h(k)}{\partial hi_h(k)}$$
$$= \frac{\partial\left(1/2\sum_{o=1}^{q}\left(d_0(k) - f\sum_{o=1}^{q} w_{ho}ho_h(k) - b_0\right)^2\right)}{\partial ho_h(k)}\frac{\partial ho_h(k)}{\partial hi_h(k)} = -\sum_{o=1}^{q}(d_0(k) - yo_o(k))f(yi_o(k))w_{ho}\frac{\partial ho_h(k)}{\partial hi_h(k)}$$

(6) The algorithm corrects the connection weight $w_{ho}(k)$ according to the $\delta_h(k)$ of each neuron in the output layer and the output of each neuron in the hidden layer

$$\Delta w_{ho}(k) = -\mu\frac{\partial e}{\partial w_{ho}} = \mu\delta_o(k)ho_h(k)$$
$$w_{ho}^{N+1} = w_{ho}^{N} + \eta\delta_o(k)ho_h(k) \tag{16}$$

(7) The algorithm corrects the connection weight t according to the $8A(k)$ of each neuron in the hidden layer and the input of each neuron in the input layer

$$\Delta w_{ih}(k) = -\mu\frac{\partial e}{\partial w_{ih}} = -\mu\frac{\partial e}{\partial hi_h(k)}\frac{\partial hi_h(k)}{\partial w_{ih}}$$
$$w_{ih}^{N+1} = w_{ih}^{N} + \eta\delta_h(k)x_i(k) \tag{17}$$

(8) The algorithm calculates the global error

$$E = \frac{1}{2m}\sum_{k=1}^{m}\sum_{o=1}^{q}(d_o(k) - y_o(k))^2 \tag{18}$$

(9) The algorithm judges whether the network error meets the requirements

4. Application of Information System Optimization Algorithm Based on Machine Learning in College Music Education

In order to reduce the risk of development, each system needs to do a system analysis and demand analysis on the system before starting. Software engineering is a systematic process. The final product of software engineering is a software system. Software system is a living thing, and it follows the law of software survival. According to this idea, the software life cycle can be divided into the following stages. One is to make a plan, then need to analyze according to the plan, then proceed to system design, program coding, testing, and finally software deployment, operation, and maintenance. According to the life of the software, the design and implementation of the music distance education system for this subject are planned. This section analyzes the software system, including system requirement identification, software system questionnaire and analysis, feasibility analysis, software system flow chart, and software system data flow diagram. The purpose of system analysis is to determine whether the system can be developed, whether it is worth developing, and whether it is convenient to operate and use under current conditions through analysis. Therefore, in the analysis process of the system, this article focuses on whether the problem can be solved and whether it is worth solving, analyze from the user's standpoint, obtain actual data by means of questionnaire survey, analyze the feasibility of the system, and get the system process diagram and data flow diagram. Software requirement analysis is to complete the user's requirements for the software through the mutual exchange and communication between the developer and the user. In the process of software requirement analysis, the methods used can be flexible and changeable such as the following: designing questionnaires to understand the business process; conversation method, through the conversation between developers and users, so you can understand the user's thoughts and understand the user's perception of the software need. Requirement analysis is a very important link in software development. It is the first step in

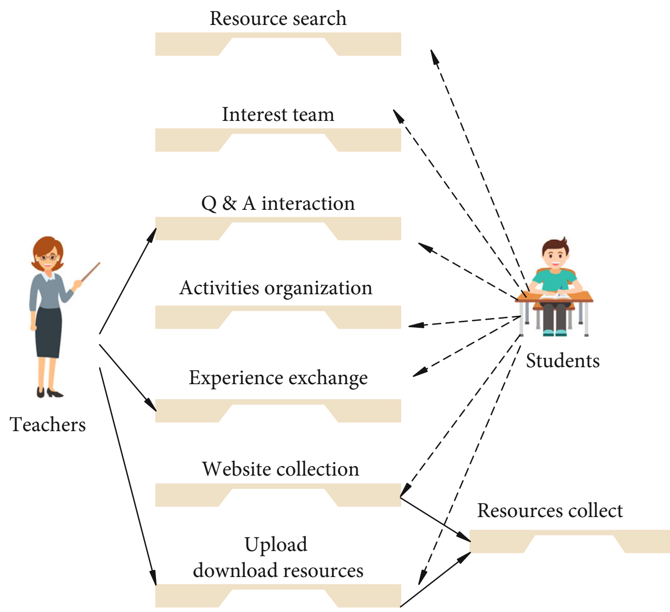

Figure 2: Overall use case of system user requirements.

actual software development. A good software requirement analysis can guide the development of software systems, improve the accuracy of software development functions, and avoid the development process. Medium rework or repeated development at the same time has a positive meaning for the later maintenance of the software. In this stage, system designers and system users cooperate and discuss, coordinate with each other, collect and sort out the actual requirements, communicate with each other, and accurately interpret the actual application requirements of users and transform them into requirements documents, which is to determine the software system. Function does the job well.

This article has studied the machine learning algorithm in the previous part, and selected the appropriate method for music information processing, on this basis, the construction of the college music education system.

The main parties involved in the system include students, teachers, school administrators, and corporate analysts and developers. Among them, students and teachers are the users of the system, and enterprise analysts and developers are the implementers of the system. School administrators are the bridge connecting users and enterprises. Whether the system can successfully enter the acceptance and use stage depends largely on the school administrator's recognition of the system. Figure 2 shows the overall use case of system user requirements.

It must be answered before further analysis of the system. Let us analyze these questions and try to answer them. The first question: The music distance education system is a platform to help students and teachers who are interested in music learn music and exchange music knowledge. The function of the software system is to realize the sharing of music materials, online video and audio playback, online learning, online communication, and other functions. In terms of performance, support for video playback, simultaneous access, and download by multiple people is required. The second question: The goal of the software system is to complete the functional support of students and teachers for music learning, support online registration, online learning, data download, audio and video online playback, online communication, etc. The third question: From the perspective of students and teachers, it is necessary to use the music distance education system to facilitate music learning, to save the progress of learning, to find the corresponding music materials, and to use the software system for help and communication. The fourth question: There are multiple technologies for implementing software systems. Among them, Java language and SSH2 framework are used for code writing, and MyEclipse10 is used as a visual development tool, which can facilitate and speed up the development of the system. The database chooses MySQL because of its good compatibility with Java and excellent performance. The fifth question: Consider dividing the functions of the software into corresponding modules when designing the software, and design each module as high as possible with high cohesion and low coupling. When considering the expansion, design according to the situation. When the expansion function is relatively independent, the expanded function can be written as a separate module without affecting other modules; when the expanded function needs to be added to some modules, external interfaces can be added. The design principles of high cohesion and low coupling are also considered when adding functions inside the module. Therefore, the software can expand the corresponding functions as needed. After answering these questions, the need for further work is systematic analysis. The difference between system analysis and demand analysis is that system analysis is to understand the system from the perspective of the system [20], and demand analysis is to observe business rules from the perspective of users. In order to conduct a systematic analysis of the music system, firstly, a music system questionnaire was compiled for the two main groups of music systems used (teachers and students) to understand the needs of teachers and students for the music system, then analyze the feasibility of the system, including technical, economic,

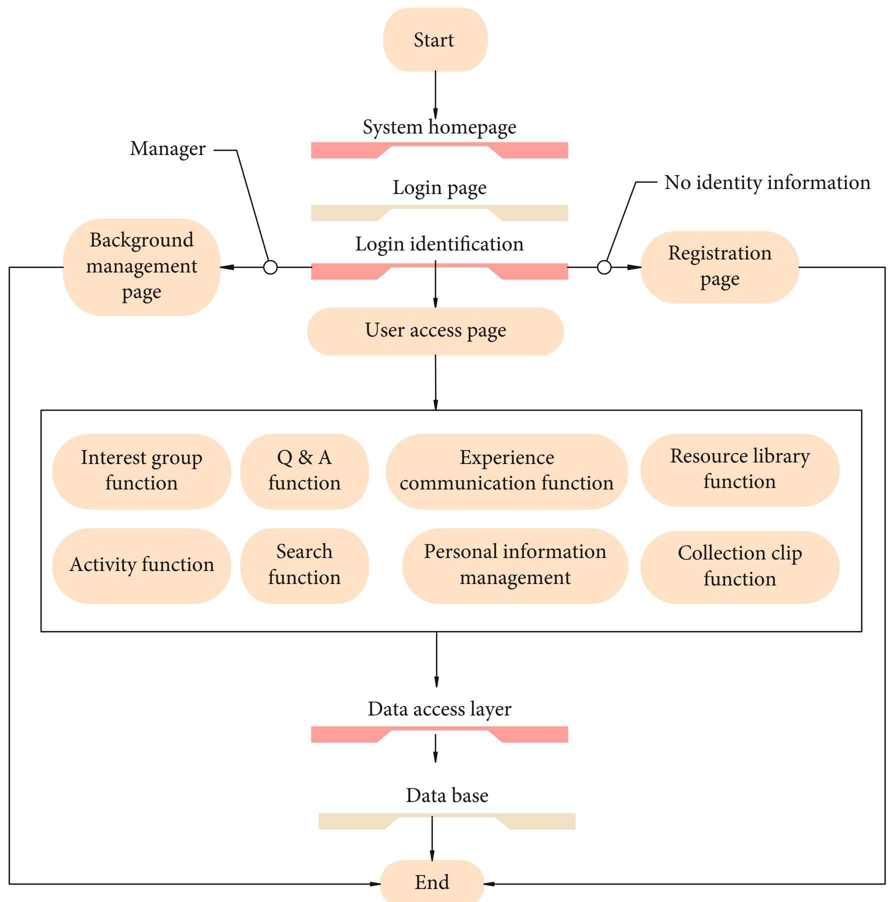

FIGURE 3: The main function business process of the system.

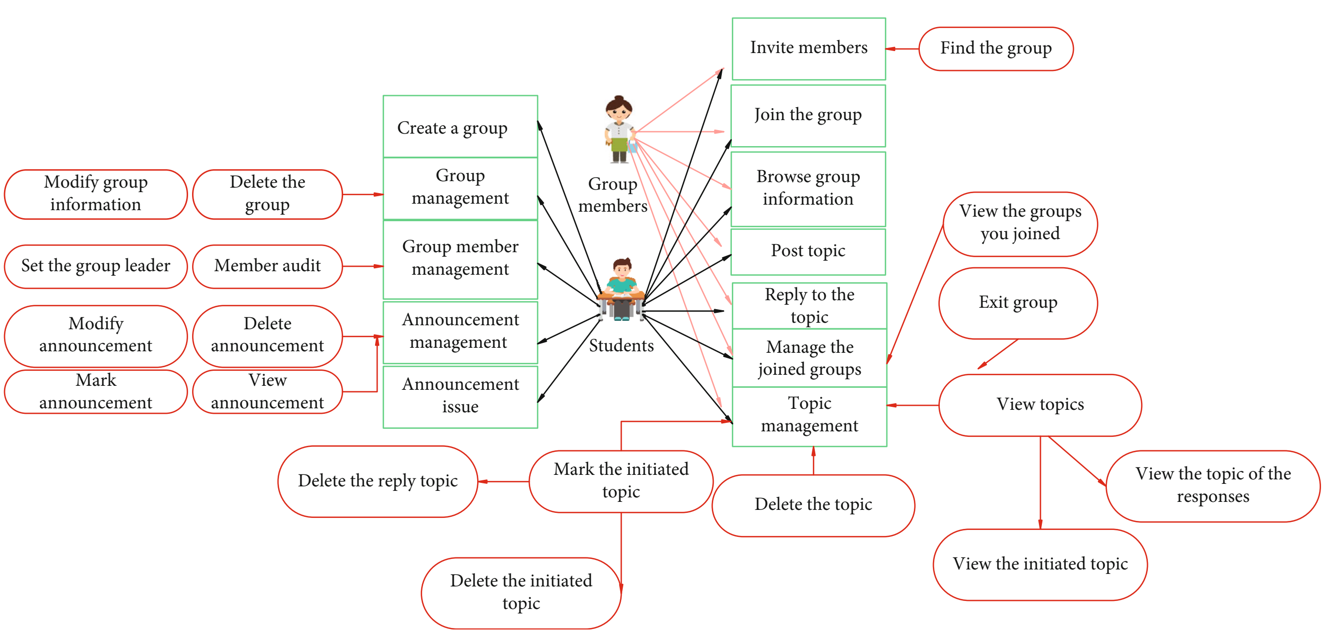

FIGURE 4: Use case diagram of interest group in college music learning community.

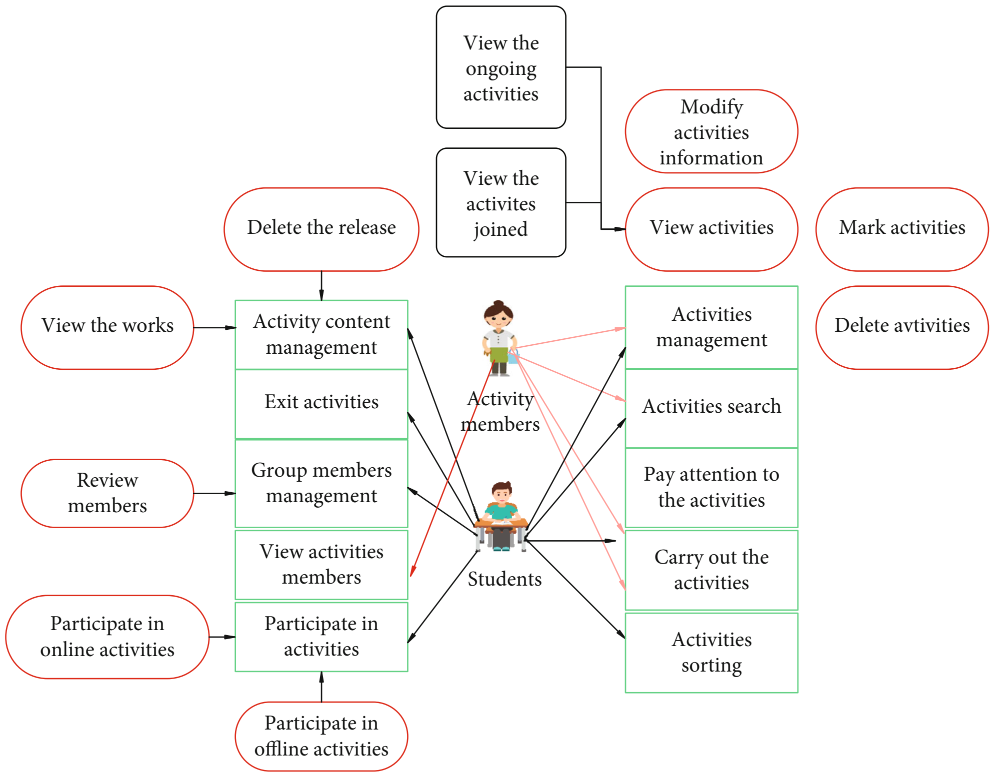

Figure 5: Use case diagram of college music learning community activities.

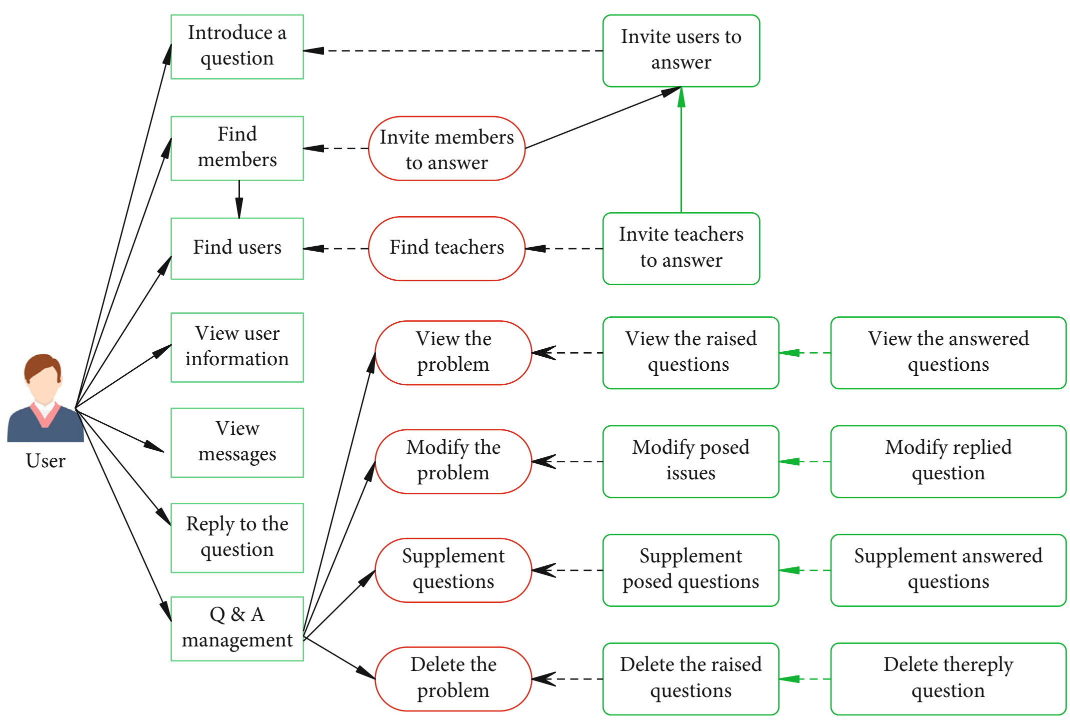

Figure 6: Use case diagram of question and answer function in college music learning community.

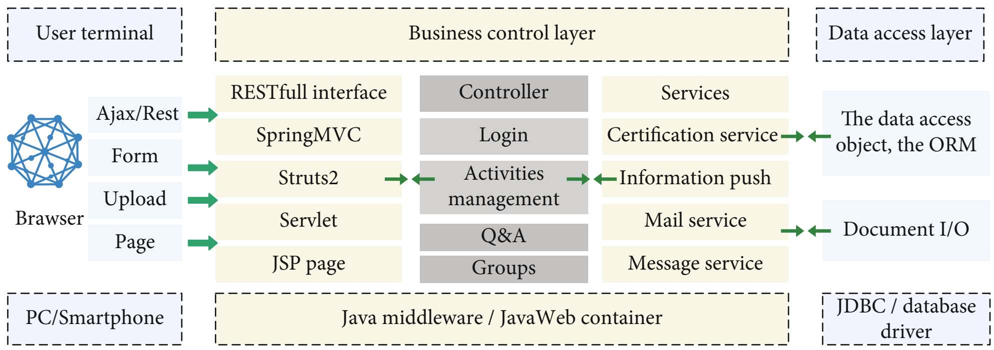

Figure 7: System architecture diagram of college music school community.

operational, and legal, and finally analyze the software system flowchart and data flow diagram.

Through the combing of the requirements framework, the following (Figure 3) main business processes are obtained:

The main function of the interest group is to establish an interest circle for a certain learning requirement, such as a grade examination group and a guitar study group. Group members can discuss and communicate on a certain issue within the group. Figure 4 shows the use case diagram of the interest group.

Any user can initiate an event, and everyone can apply to join an event. Activities can be initiated within universities or between universities. An event includes event introduction, start time, end time, location, and members, and the event is divided into two categories: online and offline. Online activities include knowledge contests and online works display, etc. Offline activities include local performances, college music academic lectures, etc. Figure 5 shows the use case diagram of the activity function.

The question and answer function is mainly to meet the needs of students in the process of learning music-related aspects, and it uses crowdsourcing to help people who encounter difficulties solve problems. When users ask questions, everyone can participate in answering the questions, or they can invite famous teachers or designated members to answer them. Figure 6 shows the use case diagram of the question and answer function.

Within the scope of the specified requirements, the requirements specifications obtained from the software requirements analysis are decomposed in detail, and the functional modules of the entire system are described in detail through description tools such as architecture diagrams, sequence diagrams, and activity diagrams. In the system development stage, coding can be guided through detailed design documents. Figure 7 is a system architecture diagram of the college music learning community.

The system development architecture is summarized as “three-tier architecture, two major systems”. The three-tier architecture from top to bottom is as follows: presentation layer, application layer, and data layer. Figure 8 shows the system software architecture diagram.

In order to make the development process of the system smoother, and to make the maintenance process of the system more convenient at the same time, this paper choses to use the B/S architecture as the network architecture. On the server side, the functions and data of the system are gathered here, so that users only need to have a computer with Internet access to access the system and obtain all kinds of resources they need. On the other hand, on both sides of the server of the system, not only functional server units but

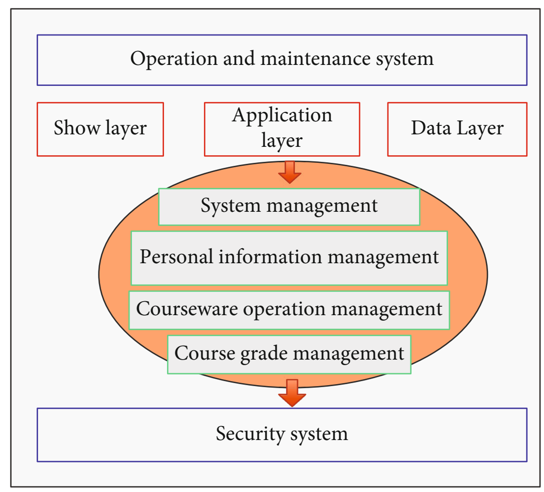

Figure 8: System software architecture diagram.

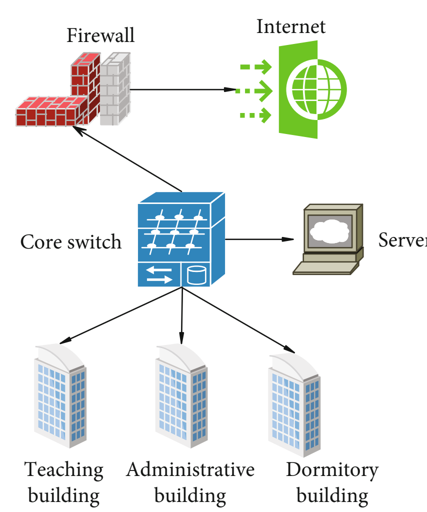

Figure 9: System network topology architecture diagram.

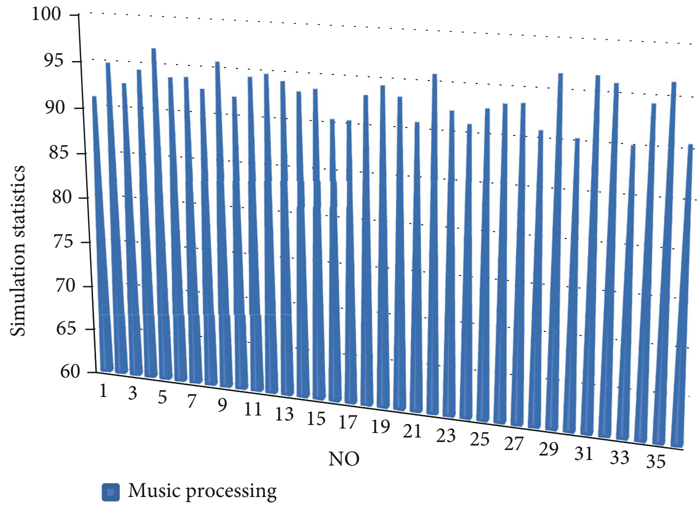

Figure 10: Music information processing effect.

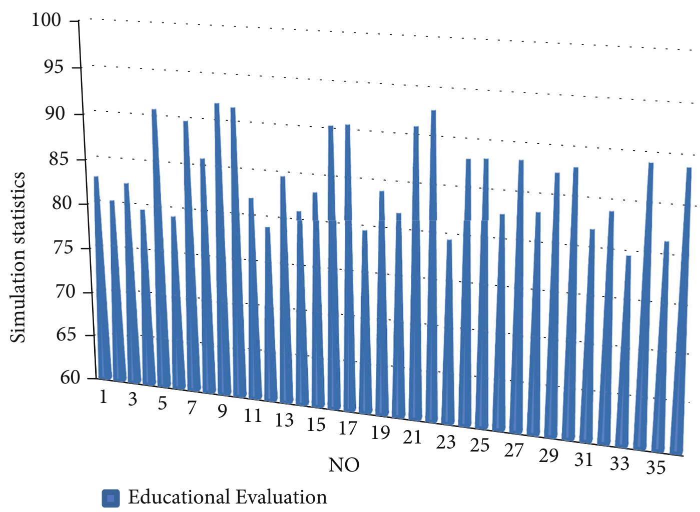

Figure 11: The effect of music education.

also database server units are deployed. Through these two units, the system can better complete various functional operations and can also effectively manage various data. In general, by adopting the B/S architecture, it not only makes the user's operation easier but also improves the efficiency of the system. Figure 9 shows the system network topology architecture diagram.

Music digital learning resources completed by developers of music digital learning resources will be in the form of .zip files. Music digital learning resources include music multimedia files and corresponding resource description files necessary for music digital resources. It is the foundation of the music digital service system. In order for the music digital learning resource to be shared, reused, and interoperated in the music digital service system, it first needs to be uploaded to the standard test system for testing. In the music digital standard test system, the user's music digital learning resources will be uploaded in the form of a .zip file.

The digital music resources in the standard test system in the form of .zip files will then be decompressed to a folder, and the system will try to find an XML file with a specific name in a specific directory of the folder. For example, in the packaging standard test, the system tries to find the description .xml file in the root directory of the folder. If the resource description file is successfully obtained, enter the next step of the test process, otherwise, the test process ends, the system will return the corresponding error message and return to the user. The corresponding resource description file obtained in the previous step is the XML. The file is the basis of the entire test. In order to be able to obtain the information contained in the resource description file, the XML file must be parsed, and the prerequisite for being able to parse the XML file is that the xml file must be legal XML. If the XML file is legal, the system will perform the next core test on the legal XML file. Otherwise, when the standard test is over, the system will generate a corresponding error message and return it to the client.

For a well-formed XML file, the system will conduct a standard test on it. Standard testing is the core business of the system. It involves two XML documents, one is an XMLSchema file in the form of test requirements, and the other is an XML file to be tested by users. The standard test process will parse two XML documents, obtain the corresponding information, and then make a logical comparison and generate a test report. If the digital music resource fails the standard test, the test report will give corresponding error information and point out the wrong place, and then guide the user's resource development process.

On the basis of the above research, the effect of this system is verified, and the music information processing and education effect of this system is evaluated based on the actual situation, and the statistical test results are obtained as shown in Figures 10 and 11.

From the above research, it can be seen that the college music education system based on the information system optimization algorithm proposed in this paper has good results and meets the actual needs of college music education.

5. Conclusion

Related disciplines of popular music education in colleges and universities are in their infancy, and they lack a scientific education system, the development of teaching theory is not complete, and the organization of materials is not perfect. Moreover, many colleges and universities have adopted traditional music methods for popular music training programs, and even teachers trained in nonpop music education related majors teach popular music. Therefore, pop music education in colleges and universities has a certain dependence on traditional music education in terms of educational thinking, talent training, and knowledge structure. Second, colleges and universities do not pay enough attention to popular music education. Researchers pointed out that although some progress has been made in the construction of pop music-related disciplines in higher art colleges in recent years, colleges that specialize in cultivating and transporting educators have not regarded the related majors of popular music education as their focus of disciplinary growth. Therefore, with the support of information technology, this paper improves the way of college music education, improves the traditional teaching mode, and improves the effect of college music education.

Data Availability

The labeled dataset used to support the findings of this study is available from the corresponding author upon request.

Conflicts of Interest

The author declares no competing interests.

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