

## Retraction

# Retracted: The Construction and Realization of the Precise Funding Platform for Impoverished Students in Colleges and Universities Driven by Computer Intelligence Technology

## **Advances in Multimedia**

Received 12 December 2023; Accepted 12 December 2023; Published 13 December 2023

Copyright © 2023 Advances in Multimedia. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

This article has been retracted by Hindawi, as publisher, following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of systematic manipulation of the publication and peer-review process. We cannot, therefore, vouch for the reliability or integrity of this article.

Please note that this notice is intended solely to alert readers that the peer-review process of this article has been compromised.

Wiley and Hindawi regret that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

## References

 W. Du and Q. Yu, "The Construction and Realization of the Precise Funding Platform for Impoverished Students in Colleges and Universities Driven by Computer Intelligence Technology," *Advances in Multimedia*, vol. 2023, Article ID 4458534, 10 pages, 2023.



## Research Article

# The Construction and Realization of the Precise Funding Platform for Impoverished Students in Colleges and Universities Driven by Computer Intelligence Technology

Weiwei Du<sup>1</sup> and Qibo Yu<sup>2</sup>

<sup>1</sup>School of Marxism, Shanxi Institute of International Trade & Commerce, Xi'an, Shanxi 712046, China <sup>2</sup>Personnel Department, Xi'an Hai Tang Vocational College, Xi'an, Shanxi 710038, China

Correspondence should be addressed to Weiwei Du; 20161025@csiic.edu.cn

Received 14 August 2022; Revised 16 September 2022; Accepted 6 October 2022; Published 29 April 2023

Academic Editor: Tao Zhou

Copyright © 2023 Weiwei Du and Qibo Yu. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

At present, the state's financial aid for students from financially disadvantaged families is increasing, and the number of students receiving financial aid is also increasing substantially. Poor students have to run back and forth to submit various materials while busy with their own studies, which causes a lot of inconvenience to students and teachers. The development of the poverty-stricken student precision funding platform frees teachers from tedious and low-end work and engages in core affairs, which improves the overall efficiency of school affairs and the controllability of information. In this context, this paper uses computer intelligence technology to realize the construction of the precise funding platform for impoverished students in colleges and universities (CAU) and completes the following tasks: (1) the research status of precise funding for impoverished students in CAU at home and abroad is introduced. (2) The SSI frame structure diagram of the funding information management platform is designed and the specific function description and detailed design of the relevant modules are given. (3) The module function test and system function test of the platform designed in this paper are completed through experiments. The results show that the system is very stable, and the functions are perfectly realized.

## 1. Introduction

With the expansion of the scale of higher education in China and the reform of the charging system of CAU, the group of poor students among the students receiving higher education is expanding and the problems arising are more diversified. These students are more hopeful to change the status quo of themselves and their families through their own efforts. How to reasonably allocate state funding resources and effectively help students to solve their difficulties is the key point in thinking about the need for financial aid for poor students in CAU [1]. The state has successively issued a series of student assistance policies. These policies are the development and continuation of the previous policies, as well as the inheritance and innovation of the policies. However, from the perspective of

educational equity, these policies are not precise enough in terms of funding standards, funding sources, funding targets, funding management, and funding to educate people during the implementation process [2]. With the rapid development of my country's economy, many changes have taken place in the form of poor students in CAU. At present, there are many problems that need to be corrected in the work of financial aid for poor students in CAU. For example, in the process of evaluating the poverty level of students from financially disadvantaged families, some schools have simple working methods. The phenomenon of canvassing votes, voting for elections, or being recommended by major student cadres among students makes state funding lose its original meaning. Public resources cannot be fairly distributed to where they are needed, and equal educational opportunities cannot be achieved at all [3]. In the actual work of the management department of poor students at CAU, the concept of "precise funding" must be firmly established. This is a practical innovation of student financial aid work in the new era, and it is an era feature of student financial aid work in the new era and has great practical significance. Doing a good job of subsidizing poor students in CAU is an urgent need to build a country with strong human resources. Moreover, building a strong country with human resources is an important foundation for implementing the strategy of strengthening the country with talents and realizing the great rejuvenation of the Chinese nation. Under such a general situation, precise funding has become the development direction of poverty-stricken students in my country's CAU [4]. The primary task of targeted poverty alleviation in CAU is to provide targeted financial assistance to poor students. Through the establishment of a scientific and effective working mechanism, it can accurately identify the poor students in school and accurately assess their poverty level. Realize the refined management of each funded project and ensure the accurate distribution of state and social funding. The accurate funding tracking and feedback mechanism is established and improved, and the mechanism to realize funding and educating people is strictly evaluated and supervised [5]. Accurate funding goals are the key to accurate funding for impoverished students in CAU. Accurate identification of impoverished students requires qualitative and quantitative analysis of the identified objects based on data mining technology. Then, practical indicators such as the reasons for students' poverty and poverty levels are extracted to lay a solid foundation for the subsequent funding work. Secondly, the refined management of subsidized projects is based on accurate identification, and the students are funded on demand according to the reasons for poverty and the poverty level of students. The Student Financial Aid Center of CAU comprehensively coordinates funding resources and strives to enable every poor student to accept funding projects and funding forms that match their actual situation. Strive to not only solve the economic problems of students during school but also lay the foundation for their subsequent growth and even the family's poverty alleviation [6]. Finally, both the national student financial aid management agency and the college student financial aid center should establish a comprehensive assessment mechanism and conduct periodic assessments of the process and effect of precise funding to consolidate the funding effect. The core content of the assessment mechanism is to establish a scientific and accurate funding evaluation index system. The establishment of the system requires optimizing the top-level design to be oriented by funding and educating people, with clear rewards and punishments, and to change the way of thinking that there is no credit and hard work in the past [7]. Units with excellent funding effects can be given certain incentives and funding inclinations, and units that do not work well should be ordered to rectify and give corresponding guidance. In recent years, in order to better achieve targeted poverty alleviation and better financial education,

many CAUs have established targeted financial aid platforms for poor students [8]. We have used various forces to strengthen the construction of funding education platforms, with remarkable results. From the perspective of targeted poverty alleviation, it is of great significance for colleges and universities to build a platform for targeted financial aid for poor students, which is embodied in two aspects. The first is to provide an important basis for the effective development of targeted financial aid for impoverished students in CAU. In recent years, in order to help more students from financially disadvantaged families successfully complete their studies, many CAUs have devoted themselves to the work of subsidizing and educating people. However, unfortunately, due to the lack of support for the subsidized education of some higher vocational colleges, it is difficult to achieve ideal results. The construction of a precise funding platform for poor students provides important support for the work of funding and educating people in CAU and guides the work of funding and educating workers to carry out work in a targeted manner, thereby effectively improving the quality of funding and educating people in higher vocational colleges. The second is to better carry out the work of subsidizing and educating people under the concept of targeted poverty alleviation. The construction of a harmonious, orderly, and powerful platform for financial aid education in CAU will not only help the college student financial aid management center to better practice the concept of targeted poverty alleviation but also carry out financial aid and education work in a targeted manner. At the same time, it is also conducive to fully coordinating and unifying various types of funding from universities, society, and the government. The establishment of the individualized and refined subsidizing and educating work mechanism in CAU can better promote the growth of students from financially disadvantaged families and smoothly carry out the subsidizing and educating work of higher vocational colleges [9]. Actively promoting the deep integration of big data information technology and student financial aid work and promoting application and innovation are of great significance to improve the modernization level of the education governance system and governance capacity. A big data platform is built for school-level precision funding, the full data of students from different business departments are collected and integrated, a comprehensive evaluation index system is built, and a precise funding analysis model is established. In addition, the visual display of the analysis results can provide an effective basis for the development of student aid work [10]. The platform has the following characteristics. By correlating and collecting data sources from multiple school departments, on the one hand, it is possible to understand the real consumption level of students, and on the other hand, it is convenient for the evaluation of funding levels and the overall allocation of quotas from the whole school level. It solves the problems of a single source of traditional application student data and allocation of places based on experience and provides a reference plan for CAU to implement precise funding, explore a multidimensional comprehensive evaluation

index system including students' economic situation, academic situation, living situation, and network dynamics, and can find students who have not applied for school financial subsidies but do need care in the massive student data. In addition, through the hidden methods such as electronic grants, it will be issued back to maintain the selfesteem of students. Through the visual chart, on the one hand, you can visually see the effect of student financial aid, understand the substantive assistance of students' life and learning after receiving financial aid, and facilitate the establishment of files for long-term tracking. On the other hand, it can show the implementation of funds, strengthen the normal supervision of funding funds, and ensure the rational and compliant use of funding funds [11]. This paper designs a big data platform for accurate funding based on a comprehensive evaluation, which solves the problems of a single source of information in the traditional funding model, a high subjective proportion of poor students in grading, a long processing cycle, and the inability to track feedback. Personalized and visualized application services are provided for the student aid department. Practical applications show that the precision funding big data platform can efficiently and reliably monitor, analyze, and provide feedback on student dynamics. The platform provides a multiangle comprehensive data analyses and calculation index system, which improves the accuracy of the classification of poor students. Through data correlation analysis, data mining, and prediction and early warning, we can care for students who need help in a more humane way. With the continuous improvement of the data evaluation system, the application scenarios supported by the precision funding system will be more abundant.

#### 2. Related Work

Research on financial aid for impoverished students in CAU is a hot issue, but there are relatively few research studies on precision financial aid both at home and abroad. Domestic research on the funding of poor students in CAU mainly focuses on the research on funding policy, the identification of poor students, the research on the current situation of funding, the ethical issues of funding, and the research on the mental health of poor students. However, foreign research mainly focuses on the research on funding theory and funding model. The research on various indicators of educational equity in the funding system of CAU involves less and has not yet been thoroughly discussed. Reference [12] analyzes the funding policies that have been formed in my country. It is pointed out that my country has gradually formed a financial aid policy system for college students with the content of "award, aid, study, loan, attendance, subsidy, and reduction" and green channels, so that many poor students can receive timely and effective financial aid. However, under the influence of current political, economic, educational, and cultural factors, there are still injustices in the rights and opportunities for poor students to receive higher education, the allocation of financial resources for poor students in CAU, and the actual operation of financial

aid policies. It is imperative to formulate scientific and effective funding policies to promote educational equity. Reference [13] argues that from the perspective of promoting equal opportunities in higher education, there are still insufficient policies in terms of funding standards, funding sources, operating agencies, and funding scope. For students from financially disadvantaged families, the current standards for identifying impoverished students in CAU are vague and inoperable, which is very unfavorable for them to accurately grasp the policy during the application process and improve the success rate of the application. The sources of funding for CAU are unstable, and the localization is serious, and the level of specialization of the personnel of the funding management center is not high. The operation of funding agencies has not formed an organic and institutionalized management, and the funding of private CAU has not been given enough attention in the overall funding system. Reference [14] comprehensively analyzes various indicators of scholarships and grants currently issued in my country. This paper points out the advantages and disadvantages of the current funding policy for poor students in CAU and proposes that in order to achieve the scientific and healthy development of the funding policy for poor students in CAU, it is necessary to boldly reform the current funding policy system, and the idea of how far the fund is raised and the combination of point and face funding are proposed. Reference [15] pointed out that there is currently a lack of national standards for the identification of poor students in CAU in my country. There are many problems such as the mere formality in the process of college identification, the disorderly actions of the civil affairs department in the source of students, and the loss of integrity of some college students. The binding mechanism between poverty identification and student loans is explored, the awareness of due diligence of the civil affairs department in the source of students is strengthened, and the integrity and law-abiding education of poverty-identified students is strengthened. Reference [16] established a qualitative and quantitative identification index system for poor students from the perspective of seeking the optimization and reconstruction of the funding mechanism for poor students. It also lists the indicators of absolute poverty and relative poverty at all levels in detail, reducing the interference of human factors in the process of identifying poor students. Combined with the establishment of an information-based identification platform, the accuracy and efficiency of identification have been improved. Reference [17] proposed to construct the identification index system of poor students from two aspects of personal situation and family situation, aiming at many shortcomings such as strong subjectivity, vague definition of the poverty level, and single inspection index in the identification method of poor students. The fuzzy comprehensive evaluation method is applied to the identification of poor students to improve the accuracy and objectivity of the identification of poor students. From the perspective of students, reference [18] pointed out that the current education funding for poor students has problems such as imperfect identification mechanism for funding objects, relatively single funding subjects, and funding models that need to be optimized. The identification mechanism for subsidized objects is provided and improved, government funding is strengthened, social forces are encouraged to help students, and the internal structure of the education subsidy system for poor students is optimized. The solution strategy combining "economic and material assistance" and "spiritual and psychological assistance" is focused. Reference [19] pointed out that there are many areas for improvement in funding ethics in the funding work for poor students in CAU. It exists in the identification of poor students, the operation process, the distribution channel, and the quality of personnel and proposes countermeasures. Reference [20] believed that the psychological distress and realistic pressure of poor college students mainly come from the confusion and uncertainty of college life. Emphasis is placed on strengthening the motivation, integrity education, and spiritual poverty alleviation of poor students. Poor college students are helped to improve their self-confidence skills, gain self-confidence, and comprehensively improve their own quality. Reference [14] regarded the financial aid for poor students in CAU as part of the national poverty alleviation and development work and also began to introduce precise financial aid methods. Reference [21] used computer intelligence technology to design and implement a financial aid management system for poor students. In addition, according to the specific work needs of school administrators and other users, the diversified functions of the financial aid management system for poor students are designed and developed. Reference [22] studied the problems existing in the current poverty identification system in domestic CAU and analyzed in detail the real needs of users in CAU for the management system. Using the SSH2 framework, a poverty-stricken student identification and financial aid management system is built, which implements the collection of family information, student information, poverty identification, and student application approval, and the idea of distributing financial aid through a greedy algorithm is proposed.

#### 3. Method

3.1. Platform Architecture Design. This platform is designed in the mode of Web, and the development language adopts Java programming language. The SSI framework design that integrates Struts, Spring, and IBatis to support Web development. SSI is based on the MVC design pattern of Struts, using Spring's dependency injection features, combined with IBatis' cache control mechanism and semipersistent features, to complete the framework's construction. The SSI framework includes the following four layers: the first layer of data persistence layer; the second layer of business logic layer; the third layer of control layer; and the fourth layer of the view layer. The SSI architecture design in this platform is shown in Figure 1.

View layer: using JSP page technology, the style of the page is displayed, and interacted with the backend. Control layer: it is directly responsible for interacting with the view layer. The designed Action classes include the Action class for identifying poor students, the Action class for work-

study, the Action class for charity sale, and the Action class for answering questions. Business logic layer: it is mainly responsible for the logic application design of business modules, and the functions implemented by the platform are completed here. The Service class is called for business processing. The designed Service classes include the povertystricken student identification service class, the work-study service class, the charity sale service class, and the questionand-answer service class. Data persistence layer: IBatis is integrated with the Spring framework and uses Spring's template to operate the database to achieve object persistence. The IBatis interface design DAO class is completed. The DAO categories designed include the identification DAO category for poor students, the DAO category for work-study assistance, the DAO category for charity sales, and the DAO category for answering questions. The four levels are closely related, and the whole is a loop. The basic steps are as follows. The user action of the view layer is passed to the control layer through JS, and the Action class of the control layer calls the Service class of the business logic layer according to the action to process the business code. The Service class of the business logic layer manages transactions through Spring, performs rollback operations to ensure data integrity, and calls DAO classes for data operations. The Service class of the business logic layer needs to add, delete, modify, and check the contents of the database table by calling the DAO class that inherits the Spring data operation template. After Spring and IBatis are integrated, Spring templates can implement data persistence layer operations on the data in the MySQL library. In addition, transactions in data operations are managed through Spring. The DAO class of the data persistence layer returns the result of the database operation to the Service class of the business logic layer, and the Service class of the business logic layer returns the result to the Action class of the control layer. After that, the Action class of the control layer will return the result to the view layer, and the view layer will present different styles according to the result, so as to realize the interaction between the front and the back.

#### 3.2. Functional Detailed Design

#### 3.2.1. Design Principles

(1) Easy to Use. Because one of the users of this platform is mainly poor students, most of them come from poor families, they rarely have access to computers before entering college, and they may not be very skilled in computer operation. Therefore, we should try our best to make what poor students see is what they get, and it is easy to understand. To do it without the help of outsiders, just follow the text prompts on the screen to get started smoothly, quickly fill in the required content, and log in to the system.

(2) Scalability. When the platform was first built, due to lack of experience, the functions of various aspects were not considered very comprehensive. With the continuous development of the college and the continuous reform of the



FIGURE 1: SSI framework structure diagram of funding information management platform.

educational system, the platform will certainly add other necessary modules as needed in the future. This requires that the potential needs of subsequent addition of other functions should be fully considered in the initial database design and coding stage. Leave enough database fields to provide upgrade space to avoid the trouble of data migration caused by reopening or redesigning the database in the future, in short to minimize investment risk.

(3) Safety and Reliability. The platform is used for school education, and a large amount of basic information about students is stored in it. This information is private to students and involves the students' own privacy and property safety. Therefore, it is necessary to resolutely prevent information leakage. From the platform itself, it is necessary to prevent outsiders from cracking user names and passwords and downloading student information through illegal means. Preventing such as SQL requires the program itself to take more secure coding measures. In order to prevent brute force cracking, you can set a verification code when logging in or prohibit the login within a certain period of time when the password error reaches the limit condition within a certain period of time.

(4) Low Coupling and High Cohesion. Each module involved in this platform is relatively independent. In terms of database design, try to avoid chain reactions when deleting information. Only the information associated with a certain piece of information can be deleted, and the irrelevant ones are less involved. When designing the table structure, it is necessary to conform to the third normal form.

3.2.2. Database Design. Database design refers to the design of database-based application platform or management information platform and is an important part of software platform design. The quality of database design affects the realization effect and operation efficiency of the platform. When designing the database, it is necessary to fully understand the requirements of the platform and the relationship between business data and design a database model that matches the functional requirements of the platform. The process of database design includes database conceptual model design and database physical structure design.

(1) Database Conceptual Design. Database conceptual design is the induction of user information requirements, and the result of conceptual design is a conceptual data model. The most commonly used model for describing conceptual model design is the entity-relationship model (E-R model). It contains three basic elements: entities, relationships, and attributes. According to the functional requirement analysis and data requirement analysis of the platform, the E-R relationship model of the platform is designed as follows. E-R relationship model for students to improve personal information: a student can only complete basic personal information after entering the student ID and password to log in to the system. Staff management E-R relationship model: school administrators can add, query, and delete multiple staff information. Post management E-R relationship model: school administrators can add, query, and delete multiple post information. School post recruitment information management E-R relationship model: the school financial aid administrator can update the recruitment information of multiple positions, including the school district, the position, and the number of employees. E-R relationship model for identification of poor students: students can only submit their personal applications to the department funding administrator, check their review status, and modify their applications. The department funding administrator can review the applications submitted by multiple students in the department, query and delete the applications of multiple students in the department, and add the funding types and rewards and penalties of multiple students. The school financial aid administrator can review the applications of students from all departments of the school, query, delete, and initialize the applications of multiple students and export the identification of poor students for multiple years. Work-study E-R relationship model: students can only submit their own application to the employment department administrator, check the review status, and modify the application. The administrator of the employment department can query, review, and delete the applications of multiple students and add and change the bank card numbers of multiple students. The school financial aid administrator can review the applications of students from various employment departments of the school, inquire and delete the application information of

multiple students, and change the bank card numbers of multiple students. Love charity E-R relationship model: A publisher can upload the photo of the item multiple times, select the item classification and fill in the corresponding item description, and retrieve the claim status of the multiple uploaded items. School financial aid administrators can review item information submitted by multiple publishers, delete inappropriate item information submitted by some publishers, and publish reviewed item information. Multiple claimants can apply for claiming, and the publisher can only select one claimant for distribution. The claimant and other students can check the claim status of the item. Questionable E-R Relationship Model: a student can ask some funding-related questions and query some unanswered and answered questions. The School Aid Administrator can log in to retrieve some questions and answer questions from some students.

(2) Database Physical Design. The content of the database physical design is to design the storage structure and physical implementation method of the database. The database used in this platform is MySQL. The database mainly includes the following table structures: student table, student history table, college staff table, employment information table, donated items table, donated items application and claim table, work-study question-andanswer table, number table, and announcement table. The student table mainly records the basic information of the student, the student ID is the primary key, and the password cannot be empty. The student history table mainly records the information of students who are successfully identified as poor students each year. The student number and the year of identification of poor students are the joint primary key. The college staff table mainly records the basic information of each administrator of the college. The employment information table mainly records the basic information of students recruited by various employment positions in the school. The student number is the primary key, and the bank card number cannot be empty. The donated items table mainly records the detailed information of items donated by students, and the donated student ID and item ID are the joint primary key. The application and claim form for donated items records the information of students who apply for donated items. The claim number is the primary key, and the claim student ID cannot be empty. The work-study question-and-answer form mainly records information about the questions asked by students and the answers answered by others. Number table: in order to facilitate the management of database tables and reduce the degree of coupling between each table, the number is single extracted. The table mainly includes number type, number name, and number field. It mainly records various fixed information, such as school department, nationality, college student assistant position, and so on. The number type is the primary key, and the number cannot be empty. The announcement table records the basic information of the announcement. The announcement number is the primary key. The announcement title, publisher, and content cannot be empty.

#### 3.3. Function Module Implementation

3.3.1. Register the Login Module. The roles are divided into students and staff. You need to register before logging in. Only registered users can log in. Enter the user name and password to log in to the system. After the registration is completed, you can log in to modify your personal information on the "Modify Personal Information" interface.

3.3.2. Identification Module for Poor Students. Poor students can fill in the poverty application form, write down the detailed information and poverty status, and submit it for review. The administrator will review the poverty information, and qualified poor students can pass the review. The system administrator can retrieve and review the application information of poor students, reject applications that do not meet the requirements, and can also add funding types and reward and punishment measures. The school administrator can initialize the information of the poor students in the whole school. After being initialized, all the existing application information will be cleared, so all the poor students need to apply again.

3.3.3. Work-Study Module. College post administrators can add work-study posts, including a campus and the corresponding post name. In addition, fuzzy query of positions according to the campus can be carried out. If the card number submitted by the student is incorrect, the employment department can change the card number information. If the work-study position is full, other applicants for the position will be automatically initialized as unapplied.

3.3.4. Charity Sale Module. Students can upload their own unused items to help students in need at a cheaper price. The uploader needs to upload the picture of the item and fill in the corresponding description text, select the item category, and click the submit item information button to upload the item information. In the charity sale item management interface, the administrator can manage the uploaded items and publish the information that meets the requirements; otherwise, the item information can be deleted. In love charity item claiming, students can check the item and the item's claim status. If the transaction is not completed, students can click the application claim hyperlink to claim the application. An item can be claimed by multiple people before it is sold, and the publisher chooses who is eligible to claim the item and distributes it to the selected claimant. Publishers can retrieve which items have been claimed. The claimant can log in to the email address submitted during the application to check the claim confirmation information. After other students log in, check the status of the item collection for themselves.

3.3.5. A Question-and-Answer Module. In this module, students can ask their own questions, enter the questions they want to ask in the question add, and click the question

submit button to submit the question. If you wish to revise the question before submitting it, click the "Clear Question" button. In "QA Operation," you can switch to "Question Query" to search for concerns. Students can also delete their own questions. School financial aid administrators can search for questions raised by students and answer related questions. The search can be carried out according to the answer status. Questions asked by students can be seen on the home page of the system.

3.3.6. College Announcement Release Module. School funding administrators can publish funding announcements. The administrators fill in relevant information and click the "Announcement" button to publish the announcement. The published announcement can be seen on the home page of the system.

#### 4. Experiment and Analysis

4.1. Test Data Samples and Indicators. The experimental data samples in this paper are all formed according to the data generated when the system is running. According to the experimental test indicators, the formula used in this paper is as follows. The samples are divided into positive samples and negative samples. The positive samples predicted as positive samples are true positive (TP), the positive samples predicted as negative samples are false negative (FN), the negative samples predicted as positive samples are false are false are false positive (FP), and negative samples predicted as negative samples are true negative (TN). So, there is P = TP + FN and N = FP + TN.

$$Acc = \frac{TP + TN}{P + N},$$
  
False alarm rate =  $\frac{FP}{FP + TN},$  (1)  
Miss rate =  $\frac{FN}{TP + FN}.$ 

4.2. Functional Test of Poverty-Stricken Student Identification Module. In order to ensure the normal operation of the business, the platform function test is carried out. Black box testing is to verify the input data from the user's point of view to ensure correct output results. Obviously, if there is a problem with the design of the software itself or there are loopholes in the requirements specification, black box testing will not be able to find it. Black box testing is very effective in applications with clear functions and clear modules. The most important functional module of this platform is the identification module for poor students, and the needs are relatively clear. The following is a detailed test of this functional module, as shown in Table 1.

TABLE 1: Functional test result of identification module for poor students.

Num	Operating	Result
1	Click to apply for identification of poor students	Success
2	Click the "submit application" button	Success
3	Application reason 100 words click to submit	Success
4	Complete all required fields and click submit	Success
5	Click on the department of poor students inquiry	Success
6	Click to review the eligibility of poor students	Success

The preconditions are that the device is running well, the server is running normally, and the network connection is good.

From Table 1, we can see that the basic functional test success rate is 100%, the module runs well, and it can realize various operations.

#### 4.3. System Function Test

4.3.1. System Delay. This indicator is also a very important indicator in the system. Therefore, 10 groups of tests were performed on the system, each of which was tested 1000 times. After completion, the average value was obtained. The final result is shown in Figure 2.

4.3.2. Data Interaction Accuracy. This indicator is one of the most important indicators of the system, which is related to whether the platform can complete basic functions. Similarly, 10 sets of experiments were performed on the system to verify the accuracy of the received data, and the results obtained are shown in Figure 3. As can be seen from the figure, the data interaction accuracy of the system is very high, which can prove that the data interaction function of the system is very good.

4.3.3. False Positive Rate. The false positive rate of the system is a very important indicator. If the false positive rate is too high, it will affect the accuracy and efficiency of the system, which is not conducive to the normal management of the platform. Similarly, 10 groups of experiments were taken to take the average value, and the results obtained are shown in Figure 4. It can be seen that the false positive rate is within an acceptable error range.

4.3.4. False Negatives Refer to the Lack of Early Warning of Actual System Failures. The false negative rate refers to the probability of false negatives for real system failures. The above method is also used for testing, and the obtained results are shown in Figure 5. It can be seen that the false negative rate is very small.







### 5. Conclusion

With the improvement of China's economic level, the level of education has also been continuously improved, and more students have the opportunity to go to university. However, there are quite a few students whose family conditions are still at a low level and cannot afford relatively high tuition fees and living expenses. In order to solve the problem of difficult and expensive schooling, the state has provided policies such as grants and scholarships in various CAU. The purpose is to help more students fulfill their dreams of going to college. In order to keep up with the pace of society, CAU have paid more attention to student financial aid for many years and tried their best to provide greater convenience for the study of poor students. However, there are various types of funding, and the identification of poor students requires fairness and fairness, so the intermediate procedures will be increased accordingly. If the basic information about financial aid of poor students is entered and saved through paper, on the one hand, it will result in the large-scale use of paper, which is inconsistent with the development requirements of the times from the perspectives of environmental protection, economy, and management. On the other hand, it cannot effectively manage and utilize various documents and cannot provide high-quality services for students and teachers conveniently and quickly. And in recent years, schools should speed up the realization of paperless meetings, reduce paper documents, and drive the need for more energy-saving construction. With the continuous expansion of enrollment, the paper information input has been increasingly unable to meet the needs. In order to effectively preserve and properly manage the funding information for a long time and to allow poor students to submit poverty information more conveniently, a funding information management platform for poor students needs to be developed urgently. In this context, this paper uses computer intelligence technology to realize the construction of the precise funding platform for impoverished students in CAU and completes the following tasks: (1) the research status of precise funding for impoverished

students in CAU at home and abroad is introduced; (2) the SSI frame structure diagram of the funding information management platform is designed and the specific function description and detailed design of the relevant modules are given; and (3) the module function test and system function test of the platform designed in this paper are completed through experiments. The results show that the system is very stable, and the functions are perfectly realized.

#### **Data Availability**

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

## **Conflicts of Interest**

The authors declare that they have no conflicts of interest.

#### References

- X. Wang, C. Liu, L. Zhang et al., "Does financial aid help poor students succeed in college?" *China Economic Review*, vol. 25, pp. 27–43, 2013.
- [2] P. Yang, "Who gets more financial aid in China? A multilevel analysis," *International Journal of Educational Development*, vol. 30, no. 6, pp. 560–569, 2010.
- [3] X. Yang, "Access to higher education for rural-poor students in China," *Educational Research for Policy and Practice*, vol. 9, no. 3, pp. 193–209, 2010.
- [4] H. Li, L. Meng, X. Shi, and B. Wu, "Poverty in China's colleges and the targeting of financial aid," *The China Quarterly*, vol. 216, pp. 970–992, 2013.
- [5] X. Xie, M. Xie, H. Jin, S. Cheung, and C. C. Huang, "Financial support and financial well-being for vocational school students in China," *Children and Youth Services Review*, vol. 118, Article ID 105442, 2020.
- [6] J. A. Liu, "A quantitative study on student financial aid of a local undergraduate college in China," World Journal of Education, vol. 9, no. 6, pp. 7–14, 2019.
- [7] W. Li, "Family background, financial constraints and higher education attendance in China," *Economics of Education Review*, vol. 26, no. 6, pp. 724–734, 2007.
- [8] P. Loyalka, Y. Song, and J. Wei, "The distribution of financial aid in China: is aid reaching poor students?" *China Economic Review*, vol. 23, no. 4, pp. 898–917, 2012.
- [9] S. Hong, "Access to higher education for disadvantaged groups in China," *Chinese Education and Society*, vol. 37, no. 1, pp. 54–71, 2004.
- [10] Q. H. Jiang and X. P. Qian, "On data-driven precision of university funding education: motivation, obstacles and practical approach—based on the construction and research of the student financial aid application platform in jiangsu province," *Vocational and Technical Education*, vol. 42, no. 18, pp. 37–41, 2021.
- [11] G. Chen, J. Liu, Z. Dong et al., "Understanding mechanisms of shape memory function deterioration for nitinol alloy during non-equilibrium solidification by electron beam," *Journal of Advanced Research*, vol. 33, no. 1, pp. 99–108, 2021.
- [12] D. Su, "Study on problems existing in related subjects involved in financial aid of impoverished university students in China and specific countermeasures," *Asian Social Science*, vol. 8, no. 10, p. 173, 2012.

#### Advances in Multimedia

- [13] H. Dong and X. Wan, "Higher education tuition and fees in China: implications and impacts on affordability and educational equity," *Current Issues in Education*, vol. 15, no. 1, 2012.
- [14] X. Sun and Y. Guo, "The ways of educational targeted poverty alleviation for the poor in rural areas in chongqing," *Educational Sciences: Theory and Practice*, vol. 18, no. 6, 2018.
- [15] E. Xue and J. Li, "The student financial aid in China's vocational education," *China's Vocational Education Reform*, pp. 71-85, Springer, Singapore, 2022.
- [16] Z. Huijie, "Strengthening the financial aid system to help poor students at higher education institutions," *Chinese Education* and Society, vol. 34, no. 4, pp. 54–62, 2001.
- [17] F. Li, "Current situation and measures of university students' financial aid system," OALib, vol. 6, no. 3, pp. 1–5, 2019.
- [18] X. Wang, C. Liu, L. Zhang et al., "College education and the poor in China: documenting the hurdles to educational attainment and college matriculation," *Asia Pacific Education Review*, vol. 12, no. 4, pp. 533–546, 2011.
- [19] E. Hannum, X. An, and H. Y. S. Cherng, "Examinations and educational opportunity in China: mobility and bottlenecks for the rural poor," *Oxford Review of Education*, vol. 37, no. 2, pp. 267–305, 2011.
- [20] H. Shen, "Access to higher education by student aid in China: results from the national survey of 100,000 students," *Evaluation & Research in Education*, vol. 22, no. 2-4, pp. 145–166, 2009.
- [21] W. Huang, F. Li, X. Liao, and P. Hu, "More money, better performance? The effects of student loans and need-based grants in China's higher education," *China Economic Review*, vol. 51, pp. 208–227, 2018.
- [22] X. Zou, "An analysis of the distribution of student financial aid and social justice in China: a quantitative approach," *International Education Studies*, vol. 2, no. 1, pp. 42–57, 2009.