



Design and Implementation of Student Financial Aid Management Information System Based on J2EE

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Abstract. With the comprehensive popularization of the compulsory education system, the overall quality of the people has improved, and more students have been able to enter higher education institutions to study. However, the family conditions of some students are difficult to support students to receive a complete higher education. Therefore, this paper combines the relevant financial aid policies formulated by the state with the actual situation of students, formulates a feasible student financial aid information management scheme, and constructs a student financial aid management information system. With the advantage of electronic technology, the system manages students' financial aid information in a unified way, so that the financial aid policy can be truly implemented. The overall development of this system is based on Windows10.0 operating system, and the development language is Java. The development kit JDK is based on version 1.8. Choose Tomcat 8.0 as the Web server, and then use the advantages of Eclipse as a Java integrated development tool to promote the stable operation of system development. The measured results of fuzzy comprehensive evaluation model show that the construction of college student financial aid management information system provides a more effective way to access financial aid information data.

Keywords: precise funding · Student financial aid management information system · J2EE · Web technology

1 Introduction

With the development of society and the popularization of compulsory education, the education level of citizens has been generally improved. With the support of economic policies, more and more students can enter their favorite universities to study, and the number of college students is increasing day by day [1]. But as far as the current economic situation of college students is concerned, there are still some students who need to bear great economic pressure in order to enter colleges and universities. Against this background, the state has issued a series of subsidy policies to alleviate the financial pressure of poor students, and provide them with a good education environment to help them realize their educational dreams. In the process of implementing the financial aid policy in colleges and universities, there are still some shortcomings: First, the school

does not pay enough attention to the implementation process of the financial aid policy, does not conduct strict qualification examination when enrolling personnel, and the financial aid list is not accurate enough, which leads to the phenomenon of making up the number of poor students who really need help. Second, some students have a strong sense of self-esteem, and are unwilling to take the initiative to apply for funding places, and they still work hard [2]. Based on the above problems, this paper constructs a student financial aid management information system with the help of digital electronic technology. The financial aid policy is presented in the form of network, and students can complete the application after providing the corresponding materials. The system will keep the information of the applicants confidential to ensure the privacy of students, and at the same time, the application materials will be more strictly screened.

2 Development Environment

According to the system development requirements and the use requirements of the above key technologies, complete the configuration and deployment of the development environment. The overall development of the system is based on Windows10.0 operating system, with Java as the basic development language, JDK version 1.8.0_91 as the development kit, Tomcat 8.0 as the Web server, Eclipse as the Java integrated development tool and SQLserver as the database. After downloading, installing and configuring the above software systems one by one, the development environment of the system is completed [4]. In the Eclipse system, to build a new Maven project, the overall deployment of SSH framework needs to be completed in three parts: Struts, Spring and Hibernate. Struts framework construction: introduce Struts-2.3.30-apps resource package, create an action class, and create a dao class and a service class in the middle. Hibernate framework construction: Hibernate Tools plug-in needs to be installed, Hibernate-release-5.2.2. Final resource package needs to be introduced, and SQLserver database needs to be connected. Spring framework construction: introduce the Spring-framework- 4.2.2. RELEASE resource package and configure the web.xml file. Then the three frameworks are integrated. The Action class of Struts is managed by Spring, which manages and deploys the Session of hibernate, and designs and implements the system functions as a whole. After the simulation test is correct, all system files are packaged and released, and deployed in Tomcat 8.0 server. After the IP address is set, it can be used by all platform users. Through the introduction of the above key technologies and theories, the overall framework flow of system development is determined, and the feasibility of establishing and running the student financial aid management information system based on J2EE is clarified.

3 Functional Implementation

In order to maintain the security of users' personal information and reduce the risks and problems caused by VPN account theft, the system will adopt two login methods: account number and code scanning [5]. Users' account passwords are uniformly distributed by the school. When the user logs in the system for the first time, it is necessary to modify the initial password of the account to ensure the security of the account information.

The system divides users into administrator users and student users, and provides them with different system functions and services according to different login roles. After the login is completed, the power and responsibility of the administrator user are relatively broad, and all the functions of the system can be modified and maintained. However, student users can only use basic functions such as information inquiry, policy browsing and funding declaration.

3.1 Management Side

In order to improve work efficiency and ensure the accuracy of funding information, this system will cooperate with the information gathering platform of national departments. Administrator users can check the applicant's relevant information and family background from the existing information registration platforms such as the poverty alleviation office or the private sector of the local government to ensure the authenticity and accuracy of the information [6]. When some information changes, the administrator user can update the information data of sponsored students online and instantly through the integration function of the system without manual input. In the auditing stage, administrator users can use the rating function of the system to simply grade the students' family situation, and then make a further division according to the application materials and actual situation.

In order to encourage students to learn, the system has a special scholarship module, in which students' GPA will be used as the rating standard. In order to improve the accuracy and fairness of the selection, the system uses AHP algorithm model to calculate the grade points of students, as shown in Table 1 [7]. The formula for calculating the weight value of the grade point is shown in Formula 1, where λ_{\max} represents the weight value, C represents the grade level, and X ranks the weight vector [8]. Colleges and universities can flexibly set the funding level of scholarships according to the grade points. For this kind of awards that can be generated only by following the selection conditions, the system will set it as an automatic evaluation type. The administrator user only needs to click the operation button, and the system can sort the grade points of students and screen out qualified students, which improves office efficiency. Administrators need to publish the selection list to the activity center for students to check. There are two ways to distribute the subsidized money: tuition deduction and recharging the meal card, and the type of distribution is chosen by the students themselves.

$$\lambda_{\max} = \sum_{i=1}^n \frac{(CX)_i}{nX_i} \quad (1)$$

3.2 Student Side

In this system, student users can check the published funding policy in the activity center and prepare application materials according to the policy requirements [9]. If students want to query the previous policy documents, they can use the query function provided by the system to conduct keyword search, or query according to the policy release time. Some key codes of the information query function are as follows:

Table 1. Students' GPA evaluation results

Target layer	Measures layer	Weighted value	Item score	Score
Students' GPA evaluation	Usual performance	A1 = 0.232	87	20.184
	Final exam results	A2 = 0.227	88	19.976
	Comprehensive quality results	A3 = 0.187	89	16.643


```

$map=array();
$map=$this->_search();
$total = $this->Model->where ($map)->where(array('status' =>0,'print_status'
=>0))->count();
if ($total == 0) {
$_list = "";
} else {
$_list = $this->Model->where ($map)->where(array('status' =>0,'print_status'
=>0))->limit( $post_
data ['first'] . ',' . $post_data ['rows'] )->select();
}

```

After the overall application materials are uploaded, the system will automatically generate an information form for student users to review. In the process of inspection, if the information is incorrect or some materials are not uploaded completely, you can choose the manual uploading option to modify the materials [10]. If the completed information is wrong, you need to ask the administrator for help, and the revised information will be sent to the students in the form of short messages for the students to conduct a second review.

4 Conclusion

A strong youth makes the country prosperous, and a strong education makes the country strong. The establishment of the teaching aid policy has provided more students with the support of dreams. With the help of Internet technology, this paper constructs a student financial aid management information system and realizes the online financial aid management for poor students. The system collects funding information in the form of electronic data, which improves the efficiency of funding work. It also conducted a more rigorous screening of applications for funding places to ensure that teaching grants can be distributed to those students who really need help. In the later research, the system will optimize the student financial aid management information system in detail from three aspects: accuracy, intelligence and compatibility, so as to make it more suitable for the current work requirements of accurate financial aid, thus further promoting the construction of campus wisdom education system.

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