

Design and Implementation of the College's CPC-building System Based on the JSP

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Abstract

In this paper, we analyse the research status and existence question of traditional College's CPC-building system firstly, on this basis we carry out the system design which includes functional design, architectural design and database design. Under the guidance of party building thoughts, we implement the new College's CPC-building system by using the method of JSP-based technology and SSH technology which is based on the B/S three-layered structure.

Keywords: College's CPC-building system; JSP; SSH

1. The purpose and significance of system

With the coming of information era, the party's construction in colleges carry out a series of fruitful reforms around the informationization process, for example the advanced and high technology means and modern information method is applied to the party construction; The education means and the party members' management mode has had the radical change on the basis of the advanced information platform and information network. It changes the management approaches such as thought, organization and work style construction, thus further influence the organization and management system of party construction in colleges which prompt the modernization of means and methods of the party's ideological and political education in colleges and universities [1]. The College's

CPC-building system is based on this information network platform, and it is helpful to realize the party management informationization and facilitation.

The overall purpose of CPC-building system is to build a party construction of information system which is safe and reliable, efficient operation, easy to use, maintain and manage by adopting the advanced computer technology and high-speed network technology, so it is also a typical application of information management system[2]. By scientizing the Party's information daily work and automating the management, the manner of working can be optimized, the labor intensity can be reduced and the work efficiency can be improved, all the things provide scientific support and guarantee for the decision of the Party's leadership. The College's CPC-building system can meet the demand of party organizations at all levels of party in colleges' information management, so it is a favourable tool to push the informationalization and standardization of the colleges' party member management work at all levels.

The College's CPC-building system can achieve unified management all levels of party member, and it also can be easily input, query, modify, transfer and remove. Considering the characteristic of university student party members flowing frequently, the system must grasp the information of changes and transfer situation of the party members' at any time. The system is easy to provide comprehensive solutions for the party members' management. And it also has important practical significance, which is a series of technical, transactional, and implementation work to ensure the party's leadership and construction, it is more prominent and important in the construction of colleges.

2. The research status in China and abroad

CPC-building system is one kind of E-government system. Generally speaking, E-government means the application of modern information and communication technology adopting by governmental agencies which is used to integrate the management and service through the network technology. The object of it is to achieve the optimal reorganization of the government organization structure and working process, surpass the limitation of time, space and departmental separation. So it can strengthen the effective regulation of government operations, improve the efficiency of the work of the government, provide quality, standardized and transparent integration of management and service to the society in all aspects. Compared with the traditional government affairs, it is the application of modern electronic information technology and management theory, and it is the continuous innovation and improvement for traditional government affairs, so the high efficiency of government management and service can be realized [3].

In abroad, the former US President Bill Clinton's initiated electronic government

affairs as early as 1993. The subsequent years, the US injected a lot of money to the implementation of E-government in order to promote the rapid development of it. The early development of Chinese E-government [4] mainly manifested in two aspects: China has formulated the planning of office automation and the development of the country since 1985; The Three Golden Project was started at the end of 1993 and the national informatization development compendium ninth five-year plan and 2010 documents were established by the leading group for information technology advancement under the State Council in 1996. With the progress of informatization in China, CPC-building of information research is also in full swing. Even more, some provinces and cities including some counties in the province party committee have constructed the electronic party affairs, such as constructing CPC-building web site, development and application in party affairs management software and the construction of electronic party affairs platform.

3. Overall design of system

3.1 Functional design

On the basis of the process of joining in the Party, the party members' information and the requirement of the daily management, the College's CPC-building system adopts friendly man-machine interface, so the users can quickly grasp the related operations when log in for the first time. The users use browser to access the system and enter the users' login interface. The different function modules of the system is divided by different user role, in this system the user role includes system administrator, branch manager and student or teacher.

3.1.1 System administrator

After simultaneous input the user name and password the system administrator enter the system, all modules and its corresponding information storage of the system can be delete, add and find by the system administrator. In addition, the system administrator can manage the information of each branch administrator, such as announcing, modifying the branch administrator privileges and deleting users and branch manager. The permissions of the system administrator includes 4 aspects: the first is managing and querying all the users' data and related information; the second is reviewing and managing the comment on the content of the announcement; the third is managing the branch manager; the last is managing the permissions to all users.

3.1.2 Branch manager

After simultaneous input their own user name and password the branch manager enter the system, then he can manage the affair of the branch. The affair of the branch

includes changing their own information, releasing relevant information of the branch, reviewing the branch membership applicants in the submission of all stages (such as applications and thought report), filling out all the form, querying and managing the party members' information of the branch, filling in and submitting the log of the branch which includes branch committee meeting records, records of the party branch activities, branch party member conference record, branch organization life's record, the record of democratic life and dues' pay registration, etc. The branch manager's function structure diagram is shown in figure 1. The permissions of the branch manager includes 3 aspects: the first is managing and querying all the user's data and related information of the branch; the second is reviewing and managing the announcement content of the branch; the last is managing the user permissions of the branch.

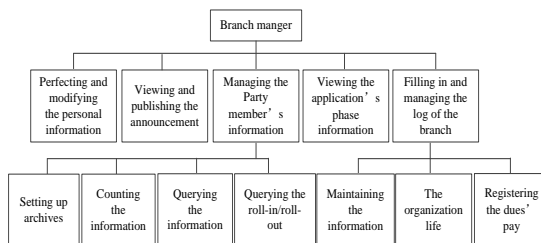


Figure 1. the function structure diagram of the branch manager

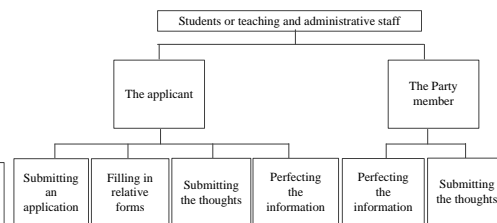


Figure 2. the function structure diagram of Students or teaching and administrative staff

3.1.3 Students or teaching and administrative staff

After input their own job number and password of the teaching and administrative staff or input the student ID and password of the student, they can enter the system and process related information. After enter the system, the student or teaching and administrative staff can modify their personal information and check the announcement of the branch. If they are the person who wants to join the party, they can submit related documents after enter the system and fill in the development of the party members form online. If they are the party members of student or teaching and administrative staff, they can upload study summary and thought on a regular basis. Students or teaching and administrative staff function structure diagram is shown in figure 2. The permissions of the student or teaching and administrative staff includes managing their own related information and leaving a message to the announcement of the branch.

3.2 Architectural design

3.2.1 Development mode

The system development model [5] has two kinds of system structure, the C/S (client/server) structure and B/S (browser/server) structure. Go through the comparative study, we find that the B/S structure is more suitable for this system

because it has the following advantages: the B/S technology is based on the exoteric and non-exclusive standard, so it is required by the organization for standardization not a single manufacturer; because it is used to install and configure on the server generally, the cost of B/S technology is low. For the C/S technology, no matter the installing, configuration or upgrade, all the things need to be implemented in all clients; The maintenance work of B/S technology mainly concentrate on the server side, the maintenance workload on client's is very few. But the client and server maintenance workload of C/S structure is larger more; The Browser technology is simple and easy to use, once the user grasp the usage of it, he can grasp the key to the system which is used on all kinds of information resources. In this system we adopt the IE browser for client and the three-layered B/S structure mode. The first layer is the web server; the second layer is the database service [6], the client uses the IE browser. By using the IE browser, the users can access the web server which adopts the Tomcat as the web server software platform, then the Tomcat calls the data in the Oracle through the JSP technology, at last the result is published on the web.

3.2.2 The advantage of the J2EE architecture based on SSH

The architecture of the College's CPC-building system we select the J2EE architecture[7] which is popular at present. The J2EE architecture is based on JAVA and it is a multilayer distributed architecture which has nothing to do with the operating platform. This kind of structure is benefit for the reliability, security, scalability, portability and maintainability of the system. The traditional J2EE architecture and the J2EE architecture based on SSH technology is analyzed and compared as follows.

3.2.2.1 The insufficient of traditional J2EE

The architecture of traditional J2EE is very complex, it is a distributed architecture which constitute around the EJB on the basis of EJB norms and core, therefore it is complex in concept, implementation and deployment inevitably. The development of application system is generally based on process, it is usually consists of a set of JSP page to implement the business process. Because the process control code and the business logical code are mixed together, the performance logic and the business logic are not mandatory separated by J2EE. Along with the frequently use of the traditional J2EE framework, more and more problems gradually exposed, and we find the main problem is the EJB [8].

3.2.2.2 The core concept and advantage of the J2EE architecture based on SSH

The group framework technology based on SSH is a lightweight J2EE framework, lightweight class contains two aspects: the lightweight in the period of development

which refers to the agility and quick response ability in the development process; the lightweight in the period of the run-time which means that it always consumes the least amount of system resources under the same operation task. Both the lightweight J2EE architecture and the traditional J2EE architecture adopt the typical layered architecture model, the difference is that different layers adopt different concrete plans. Different with the traditional J2EE, the lightweight J2EE will not force the business object following the particular platform and the proprietary interfaces, all the business logic are allowed to be implement in the ordinary JAVA objects.

3.3 Database design

3.3.1 The model design of the database

The model design of the database is to determine a reasonable data model according to the requirements of the application. The data model is used to reflect and show the objects and the relationships between them. The data of the database application management system is very large, and the relationships between them are complex, therefore the design of the data model must be reasonable, or else it will affect the performance of the application system and efficiency directly. The structural design means to get the reasonable structure of the database. For the structure design the following requirements must be meeting: it can reflect the objective things correctly, it must reduce and avoid the data redundancy to maintain the data integrity. Due to the length limitations, we just give the design of the branch log subsystem database model in this paper, which is shown in figure 3.

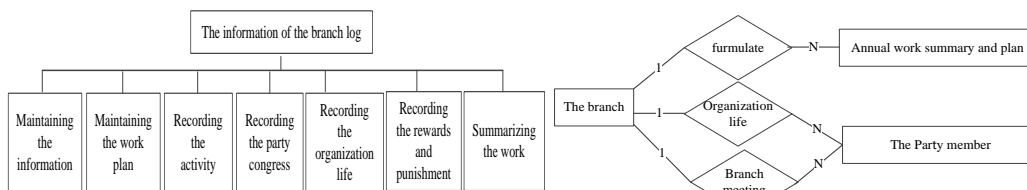


Figure 3. the database model of the branch log

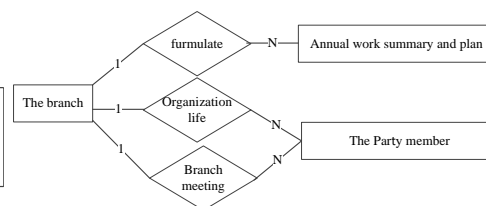


Figure 4. the E-R diagram of the baranch log

3.3.2 The conception framework design of the database

The conception framework [9] is the foundation of all kinds of data model, and it is more independent and abstract than the data model in the machine, so it is more stable. In this paper we describe the conception framework by a powerful tool which is called the Entity-Relationship Approach model. The Entity-Relationship Approach process the requirements analysis through the mixed strategy from the top to bottom, and then design the conception framework from the bottom to top.

In this paper we just give the E-R diagram of the branch log subsystem, which is shown in figure 4.

4. System implementation

In this paper, we design and implement the College's CPC-building system by using the ideas of the software engineering. The system is under the guidance of party building thought and combine with the B/S three-layered structure which is based on the JSP and the SSH technology. Due to the length limitations, we just give some models in this paper, which is shown as follows.

4.1 The implementation of the party management

According to the process of joining the Party, all the people want to be a member of the communist party of China must experience five stages which contain applicant, activists, development object, probationary party member and full member of the party. The party management subsystem includes 3 aspects: the subsystem must complete the function of inputting, modifying and deleting the basic information of all staff, it also must complete the function of inputting, modifying and deleting the basic information of the history party members; the subsystem must complete the function of querying and printing the basic information of all the staff; the subsystem must complete the function of printing all personnel register, the implementation of it is shown in figure 5.

Figure 5. the implementation of the party management

Figure 6. the implementation of the party organization

4.2 The implementation of the party organization

After be a full member of the party, all the people have been enrolled a branch, group or other specific organization which is called the party organization. The party organization management subsystem includes 3 aspects: the subsystem must complete the function of adding, deleting and modifying a party organization; the subsystem must complete the function of managing the information of the current

leadership members, all previous leadership members and the current leadership members falling to be chosen or transferred after successive leadership members no longer; the subsystem must complete the function of printing the information of the leadership members, printing the information of the party organization and dynamic querying the information we interested in, the implementation of it is shown in figure 6.

4.3 The implementation of the Dues' management

The party constitution stipulates that if a party member do not to attend the party organization life for no good reason last six months or do not pay dues', it is considered to be given up. Pay dues' is the duty of every party member. The Dues' management subsystem includes 3 aspects: the subsystem must complete the function of adding, deleting and modifying the situation of the pay dues'; the subsystem must complete the function of querying, counting and printing the situation of the pay dues'; the subsystem must complete the function of announcing the payment notice, the implementation of it is shown in figure 7.

Figure 7. the implementation of the Dues' management

Figure 8. the implementation of the organization relationship transfer

4.4 The implementation of the organization relationship transfer

Due to personnel changes, go out learning, college graduates and other reasons, in order to grasp the change situation of organization members the system often need to record the relationship change of the party members. The Dues' management subsystem includes roll-in/roll-out the membership credentials, historical counting and querying the flows of the organization relationship transfer, the implementation of it is shown in figure 8.

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