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The Architecture and Application of the Financial Pay Cost Based on the Platform of Campus Card System

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Abstract

Through a series designed of students charging system connecting managed functional department of students and outside school bank, it is realized that saving, consumption, student identity authentication, information query, settlement and management etc. This system can deduct all kinds of expenses and deliver student subsidies,scholarship and allowance automatically; May at any time of the fees for statistics collection situation; Can realize the sharing of the information resources, provide various forms of the inquiry statistics function; Follow the principle of safety first, ensure that funds, information security. This article combined with the characteristics and conditions of construction of campus card platform, they put forward the design ideas and its application focusing on the digital campus environment of financial pay cost system.

Keywords: Campus card; Information; Financial pay cost system;

1. Introduction

Recently, with the expansion of university education scale and increase of students recruitment, the charges also increases, and the income in university tuition fees plays a large part in the proportion of the total income, which makes college education become the main channel to funding sources.therefore, how to charge students

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management mode to reform and innovation has become a problem to be solved. With the popularization of digital network and education information and applications, management information is becoming one of the important factors in measuring the overall level of school, can reach high levels of school management important symbols of the University. Comprehensive data acquisition platform for digital University, College of management information systems and networks, and sharing environment form a whole range of digital space; For University managers to provide application service management platform with the openness, flexibility, is a necessary prerequisite to scientific management and management and fundamental ways. Whole school will bring a fresh, modern life.

1.1. Overall structure of financial payment system topology.

In the construction of the network, we need to make careful arrangements corresponding to each part. This system use multi-c/s framework, because of the join between the client and the database a "middle layer", making the legality check, data access, business rules, and other work in the middle-tier to handle.Clients do not directly interact with the database, but by the middle-tier connection is established, through the middle tier interacts with the database, established in the Centre will significantly reduce the number of connections on the database server, and dynamically establish and release connections, so clients will no longer be restricted.When business rules change, simply change a component on the middle-tier server, and the client application does not need to do any processing, sometimes even have to change middle-tier components, only need to modify a stored procedure in the database.This makes deployment more secure, large-scale development support system, to avoid single points of failure.Application servers and WEB servers can be deployed to more than one cluster and avoid single points of failure.System network structure is divided into storage networks, networks and access networks.Achieving network security through isolated subnet.

1.2. System features.

In General, school fees tend to be concentrated in time, tends to be concentrated within a few days of school every year, to complete a large number of collected charge, so if the system is an efficient system is the key factor of success.We use the campus card as a platform for financial payment systems, guarantees high efficiency of the system and high concurrency.The other hand, due to the increasing student enrollment in colleges and universities, especially Bank end, along with the increase in use, requirements for system performance will gradually improve in the future, the system must have high levels of scalability, through a simple software load balancing technologies through increased hardware method of dynamics to improve system performance.Provide an open XML interface, easy implementation and financial and e-card system.Open interface to realize the sector data sharing, so as to reduce duplication arising out of data exchange between the various departments.Provides reports and query mechanisms can be defined, according to the Bank automatically charge registration feedback and report cases of various custom format can be generated (such as Word, Excel, text files, DBF, HTML, etc) for statistical queries and queries for financial personnel, statistical and monitoring.

2. Functional design of financial payment subsystem based on campus one-card platform

According to the practical need of management in network charge, the system consists of subsystems, self service account management subsystem, card payment system and statistical analysis subsystem, functions of each subsystem are described below.

2.1. Account management subsystem.

The subsystem which bind the user authentication and billing policies, access control permissions in the policy package in services serves for staff who manage the system and provide a wide range of bulk operations,such as bulk household accounts, bulk renewals, bulk sales, bulk modify and so on to make it easy for users of data maintenance, simplify the Administrator's actions..The subsystem also offers customized user information management capabilities, administrators can be customized according to the habits of users of network operation information, and supporting users in the hostel moved across campus, building and migration between the users online account in certification system.

2.2. Self-service subsystem.

This subsystem is designed for user level and provides change of user name, password, and other functions.After users log in self service platform, history a record of payment can I network, network, network details and other queries, can also close, pause, and resume the network using such applications.New applications for network users, and campus Portal provides pre-registered Web user interface platform, Web users fill out personal information, so as to ensure the accuracy of the information, reduce the maintenance workload of administrators.

2.3. One-card payment subsystem.

The interfaces of the subsystem complete with a card system, front-end project procurement in the construction of campus one-card-card card and POS machines and database, back-end database connect to campus network user authentication system, allow for payment by credit card only royalties paid to complete network and network access open.

2.4. Statistical analysis subsystem.

By CAMS provide a configurable query interface, you will need to write query criteria information in the configuration file, available to CAMS system, achieving administrators on user contribution records, network, time, network address, use of features such as query and modify.In addition, the report that provides rich graphics subsystem and table style, you can easily generate, export, and print.

3. Set up a financial payment system based on campus one-card platform hardware and software conditions

3.1. General hardware devices.

General hardware devices include issuing central database servers, front, yinxiao transfer server, carDedicated hardware devices including consumer POS, earmark, self-service terminals, card reader devices, recharging machine.d application servers, access servers, disk arrays, switches, routers, encryption, card issuing Center.

3.2. General software

General software for SCO Unix family of operating systems, Oracle database, Windows XP operating system, Visual Basic 6, Access 2000 databases, applications, software, various subsystems.

4. Each functional module design

4.1. WEB client reception module.

WEB client to provide transfer services between the user and the Bank, provides campus card transfers, tuition payment transfers and transfers information inquiry function.Login to card transfers by default when the page, users simply pull down menu to select the desired service.

Recharge card transfers, tuition fee transfer both similar, users need to fill out their own authentication (such as: student number) and other related information, click after the silver system gives you links into the network, end users to fill in bank-related information, after you click submit, by online banking transfer to schools Centre Bank interface sends the appropriate information, and return transfer success.Otherwise, returns a failure information, such as: authentication information is not correct, balance transfer amount exceeds the bank card.

(1) Transfer information: users enter your student number, Bank server, query, according to the corresponding transfer of information, if transferred, transfers interface to send information to the user, otherwise, returns a query does not exist.

(2) User consumer enquiries: users can check their campus's consumption of certain conditions.

4.2. Management module.

Main news complete system, such as publishing some internal payment, recharge, station announcements, such as content management;Modify system parameters, such as a modifying merchant, bank code, tests, and other related parameters;Data proofing, major review schools bank transactions and bank records of the interfaces on the machine are the same.

4.3. Bank interface module Design.

Main bank book module of communication between servers and storage, and data processing, is a communications hub for the entire system, interface design mainly includes: (1) Interface socket communication program: receive and verify information from the earmark machine. (2) Interface design for database storage transfer information, statement, and basic database operations. (3) PC and 89C51 single chip microcomputer serial communication program: realization of serial communication between single-chip microcomputer programs, mainly used for setting a yardage machine IP address.

(1) The process of payment of tuition.

Bank server after receiving the payment of tuition fee information, change a user's Dragon card balance at the same time, will receive information related to user-generated unique ID to the order number (this is a very important sequence number).And then after processing, the order number (for example, MD5 encryption and data signature), delivered to the banks ' handling of the interface to be determined by the associated.Tuition fee paying student's behavior does not exist, when the interface receives after successful transfer of information, financial center server will immediately receive the transfer record, in order to ensure correctness, Finance Department data proofing work needs to be done.

Method of logging on payment system: through the school network log on the home page of the Finance Department Web page, click on the top right corner of the page "online payment" into the payment system; Or direct login URL, enter the payment system.

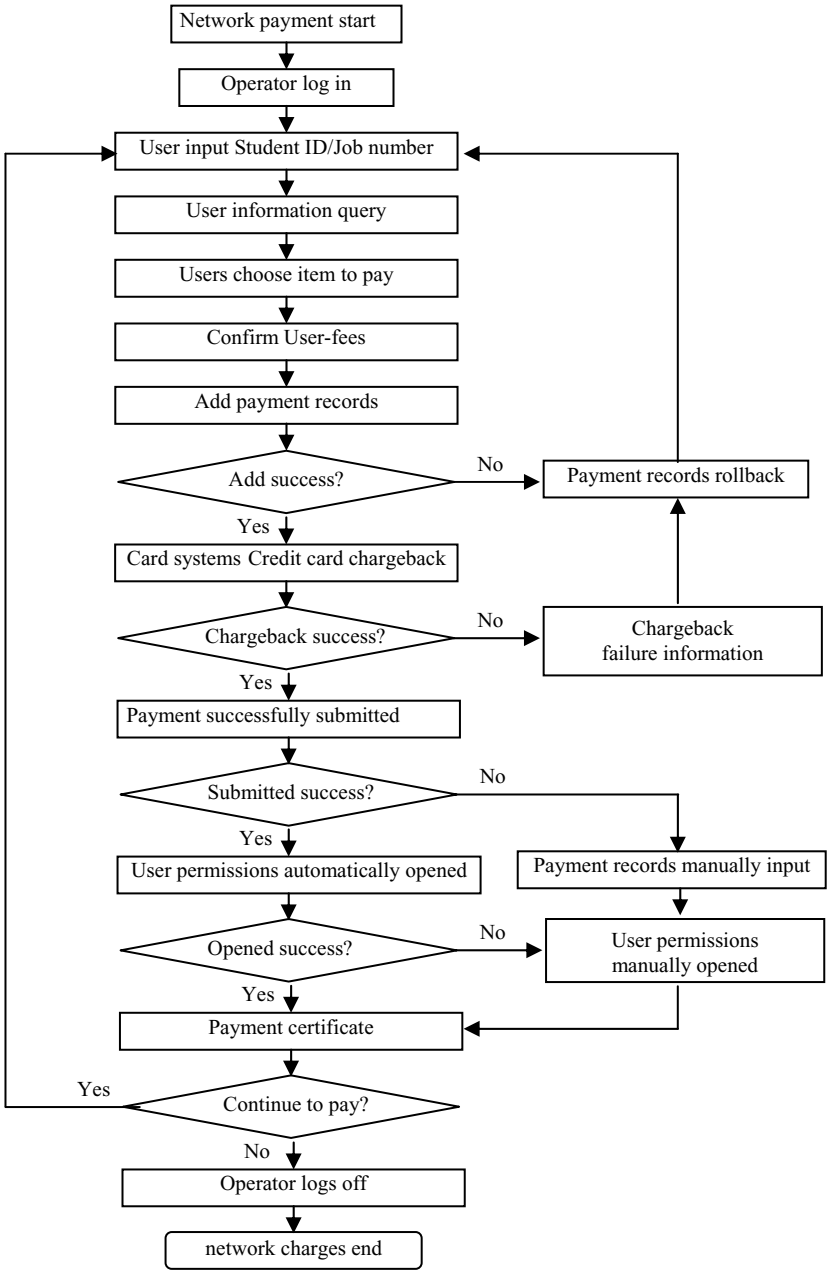

Fig. 1. The process of payment of tuition

Enter a user name, a password and an additional code, and then click "login", note: user name and password for the online payment system is not an advanced financial management platform to log in user name, password, be careful not to confuse.

Log in to the system, click on the "pay", the system will display a list will be charged, please click the check boxes to select the cost before the name bill payments, confirm, and then click the "pay" button.

After selecting this payment, payment orders need to be confirmed, cannot be modified after the order confirmation.

Select using the card for payment, banks do not charge fees.Press the "pay" button, please enter the card money page, on the left, click the "payment card number search", found after the transfer fee.

System "bank debits the successful" page, description payment operation completed.Normally within 5 minutes you can see the relevant fee has been paid. See figure 1.

(2) "One card" prepaid processing.

Similar to the process of tuition payment,bank server will receive information related to user-generated unique ID to the order number(this is a very important sequence number) after it receives the transfer charge information and change a user's Dragon card balance at the same time.And then after processing, the order number (for example, MD5 encryption and data signature), is delivered to the banks ' handling of the interface to be determined by the associated.When the interface receives after successful transfer of information, prompts the user to recharge successful students were confirmed after successful transfer, the Yardage on a yardage machine, to ensure safety and accuracy of the student transfer information to interfaces on the machine, proofing of the financial sector to take measures quickly to data for effective proofreading.

5. Conclusion

In order to improve the financial payment system based on campus one-card platform features, future directions: (1) ASP.NET in terms of memory usage and execution time is consumed very large, PFIP engine running requires more code than the equivalent PHP page, need to be improved. (2) In the course of testing the system, testing programme is limited to functional testing, practical testing and so on .other more effective means are to be further used for the better testing performance of schemes. (3) Application for building system on the security mechanism need to be further improved, especially on running IlS server, and security is required for further study.

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