

The Students' Information Integrated Management System Based

On.NET

Hualiang Wu

Information and Network Administrative Center, Jiangxi University of Technology, Nanchang
330029, Jiangxi, China

Keywords: School; The information management system; Informatization; The database

Abstract. this system is design to complete the digital management of students' result files in middle schools' daily education work. The system focuses on conform the business process to the operation, and strives for comprehensiveness and versatility, making the system not only applies to one education organization. The combined method of life cycle approach and prototyping are adopted on the choice of development methods, which follows four phases, including research, analysis, design and implementation of the system to carry on the design. And in the detailed design, evolutionary prototyping is adopted. With the deepen understanding in the using, afresh analysis, design and implement one part or several parts will be processed. Finally through the test, this system has reached the design requirements of various functions, and achieved the expected design goal.

Introduction

Student information management system is an indispensability part for education. A functional, simple and easy information and performance management system can not only effectively reduce the workload of the related work personnel, but its content is very important to decision makers and managers in schools. Therefore, students' information and performance management system should be able to provide users with sufficient information and quick inquiry method. With the continuous improvement of science and technology, people get a profound understanding of increasingly matured computer science, which has entered each domain of the human society and played an increasingly important role.

Student information and performance management is a very important part in college management. As a school, in addition to education, is importing knowledge, the computerization management of students' information is an important part in educational administration management, to realize it is relates to the overall efficiency of running school. In view of its importance, the development and application of student performance management system should be gradually carried into the agenda as soon as possible for colleges and universities. on the one hand, the workload of teaching personnel and expenditure will be reduced by using this system; on the other hand, the teaching efficiency and accuracy will be improved, and students can query their scores as soon as possible, so that they can throw themselves to ne course study or review the lessons failed to pass. In addition, the application of student performance management system has improved the competitiveness of private colleges and universities in the future education market.

System analysis

The feasibility analysis. The purpose of the feasibility study is to determine whether the problem can be solved with minimum cost as soon as possible.

Economic feasibility

Nowadays, the price of the computer has been very low, while the performance has made considerable progress. And the development of this system brings a qualitative leap for working efficiency of the school, which mainly includes the following aspects:

First, the operation of this system can replace much multifarious artificial labor;

Second, the operation of this system can save a lot of resources;

Third, the operation of this system can greatly improve the working efficiency of the school;

Fourth, this system can make sensitive documents safer and so on.

Therefore, this system is economically feasible.

Technical feasibility

The development of this system using Microsoft SQL Server 2005 as the database of this system, it is a new kind of database which supports more users and is suitable for large and medium-sized data amount needs.

Using Visual Studio 2005 as the development environment of the system provides the perfect instruction control statements, the support of the classes and objects and rich data types, this ensures the safeguard for high performance of the system and meets the requirement of customers, as well as the modularization requirements of the code, and higher modularization is beneficial to extension and modification of the new system in the future.

To sum up, the design and development on the technology of this system and the condition of the hardware are satisfied, therefore, it is technically feasible.

Operation feasibility

This system is small student information and performance management system, which needs small amount of resources. School computer can meet the conditions both in hardware and software; therefore, this system is feasible in operation.

Requirements analysis. There is a lot of students' information in daily teaching management, including basic admission files, performance information, accommodation information, payment and reward information, etc. If manual management way adopted in the large amount of information, large workload, waste of manpower, material and financial resources will bring in information access, preservation and processing. In order to manage student information efficiently and accurately, built up student information management system is an effective ways to improve the efficiency of management of a school.

Student information management system aims to establish a system to manage the various information of student. Operators can add, modify, and delete student information data through a visual interface.

The analysis of system design

This system is suitable for primary and secondary schools, and its main function is divided into six categories:

Users' management: used for users' adding, giving different access, modifying and querying of the users.

Curriculum management: used to open and modify the course of each semester.

Performance management: used for input, modifying, summary and ranks.

Students' information management: add, delete, modify the students' information, etc.

Teaching information management: add and maintain information of instructor, course number, credit number and class, etc.

Student information query: query student performance information in fuzzy way, as well as the unlimited condition query.

Students score statistics: statistics total scores and the average scores of undergraduate.

The performance of the system strives to easy use and is of high expansibility and maintainability.

2) Analysis of system function

Permission function: this system has dynamic permissions distribution function. Users can be grouped according to users' permissions, including ordinary users, the general users and super users. The ordinary users only can query but cannot modify. The general users can only modify and delete within the scope of permission. Super users can modify and delete all information.

Input function: provides the corresponding functions of the input for the general users; provides all information access for super users.

Query function: provides the function of the query for all users within the limited scope of all information

Maintenance functions: provides the corresponding functions of query, modifying and deleting for the general users; provides all information modify and deleting for super users.

Exit function: finish and close the system.

(3) Purpose on students registration system

-Saving resource, improving the accuracy of the information.

This system can reduce a lot of unnecessary resource, instead of redundant paper management. Save the school energy. The computer storage and fast query function greatly improve the efficiency of the student registration management, as well as the precision.

Convenient and rapid operation, reduce staff and cut down expenses.

Convenient and rapid operation, can reduce bugs in registration information management, and reduce the redundancy of work because of mistakes. And the operation is very simple, which can reduce unnecessary personnel, saving costs for the school no matter on materials or on wages of workers, and increase wealth for the school.

(4) Database analysis

Students' registration management system specifically provides preservation, update, query, maintenance, and print for users' needs, which requires the database structure can fully meet the various input and output of information, systematically and dynamically store massive correlation data in order to access data in the system conveniently. It differs from files system in sharing data, cross access and with of highly independent of application programs.

Data flow analysis. Data flow chart emphasizes on data flow and process, which is shown as Fig. 1:

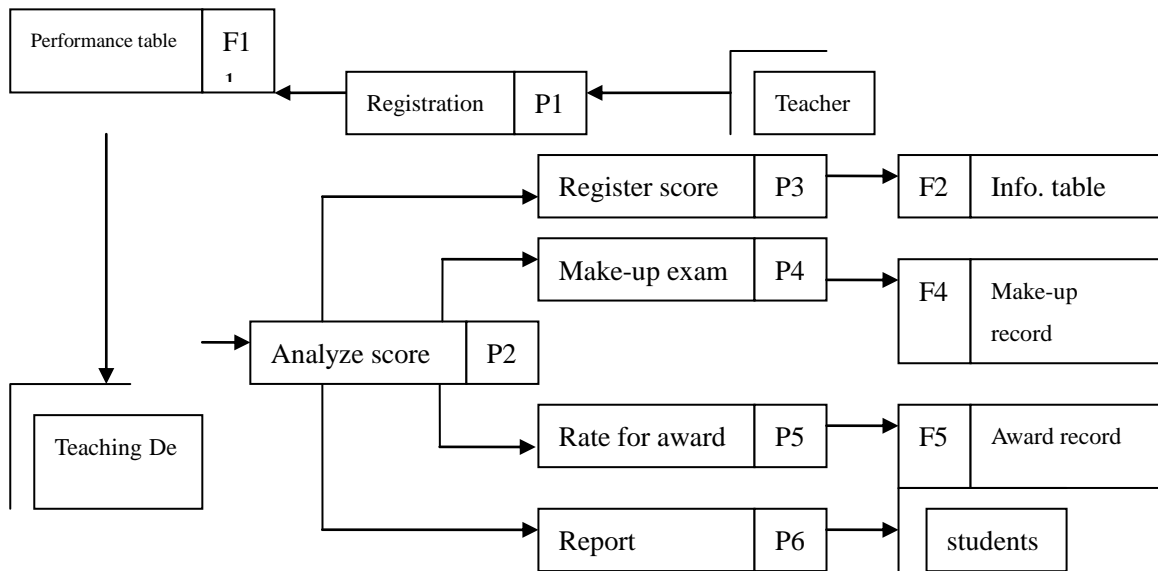


Fig. 1 Data flow chart of performance management

Data dictionary. Data dictionary focus on data information collection, which is on the basis of the data flow chart, and define the data items, data flow, processing logic, data storage, and external entity in it. Its role is providing information about the data description in the process of software analysis and design.

The analysis of system process. System flow chart is a traditional tool to describe the future physical system. Its basic idea is that describes the components of the future system through graphic symbol in the form of the black box, such as procedures, database, form and process. The symbols of system flow chart are similar to that of program flow chart. But there is a fundamental difference between system flow chart and program flow chart. System flow chart is a physical tool to describe the physical general picture of the system, in which the arrows indicate the direction of data flow; while program flow chart describes the process of computer executing a program or description of a algorithm, and the direction of arrows in this picture indicate controlling information, that is the direction of the program execution. This set of student information and performance management system is shown as Fig. 2:

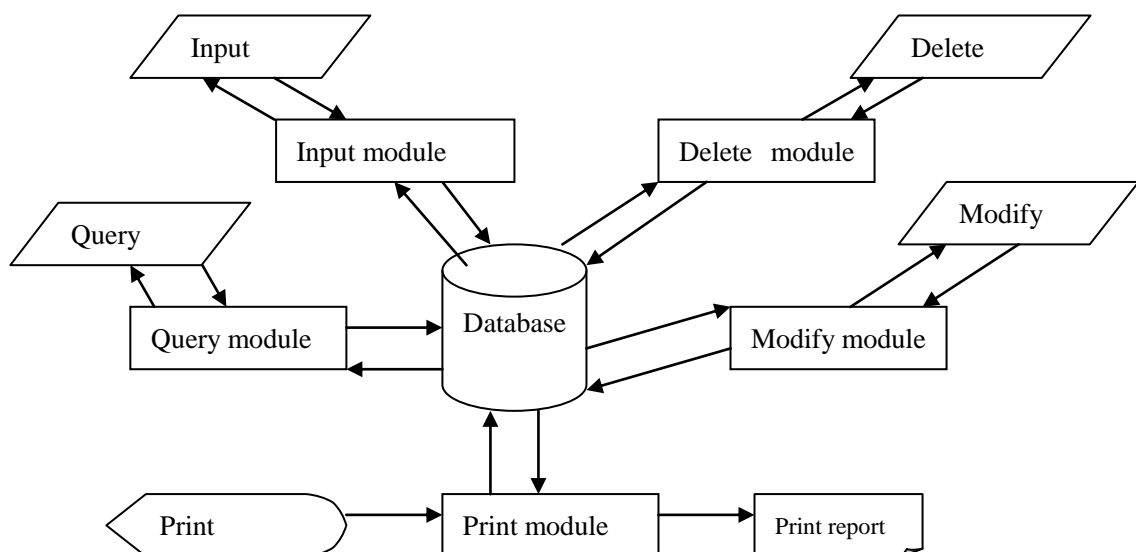


Fig. 2 Students' performance management system

Data flow Diagram (Data Flow Diagram, DFD) is to describe logic model of the system. No specific physical elements in the diagram. Even not the computer personnel can also read it. This diagram is a communication tool for software personnel and users in feasibility analysis and requirement analysis phases.

The data flow of students' information and performance management system is shown as Fig. 3:

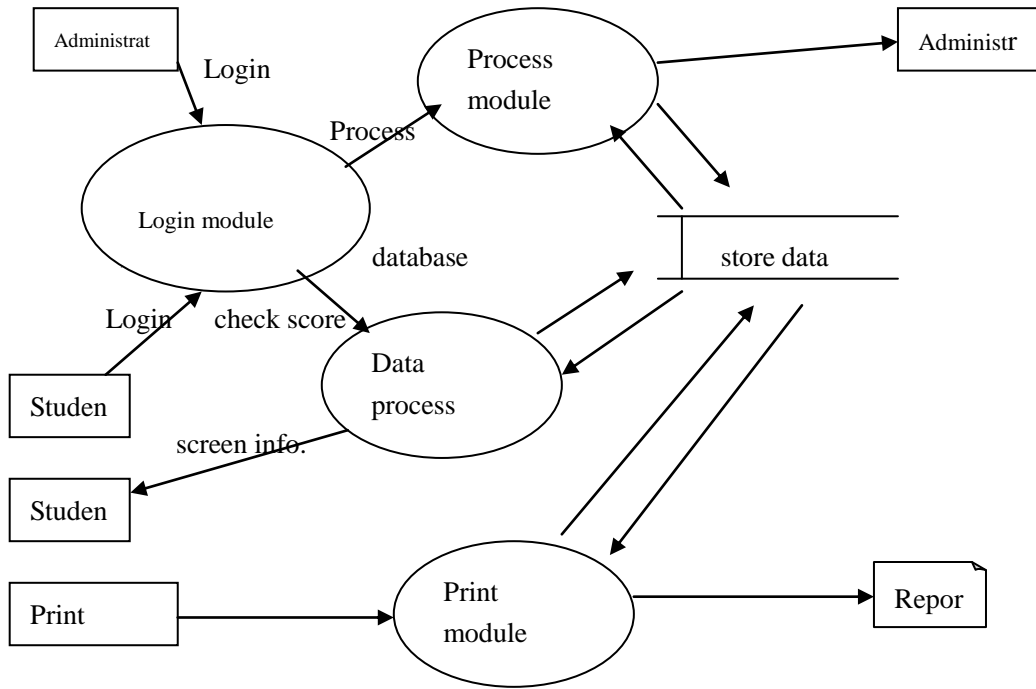


Fig. 3 Students' information and performance management system

Summary design of the system

Overall process of the system. This system implements the class information, teacher information, student information, course information, student performance information management and the corresponding add, delete, modify, check, statistics, and other operation.

The overall process is shown as Fig. 4.

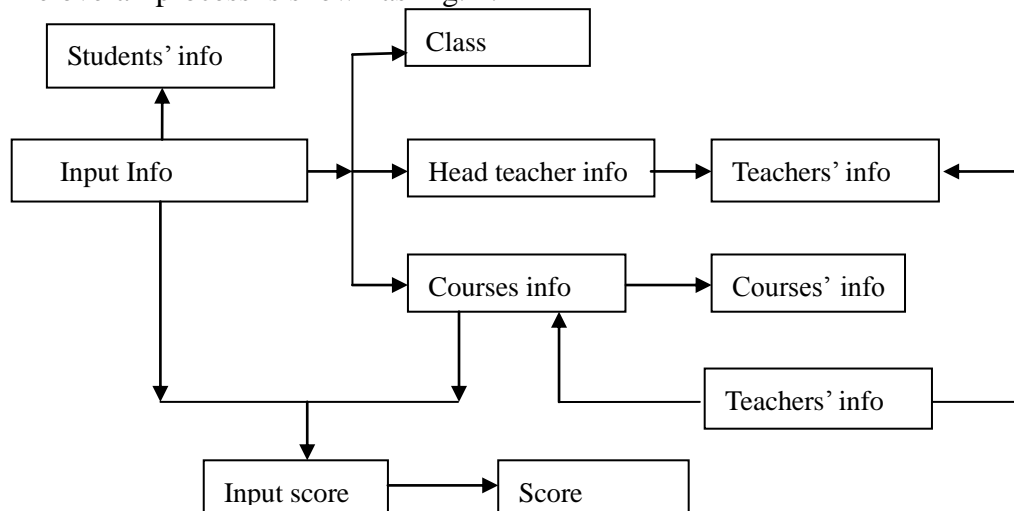


Fig. 4 overview flow chart

Business goals of system design. The goal of performance management information system is to establish an advanced, efficient, safe, reliable, and can be effectively applied to database of student performance management information. The system based on C/S structure. This information reflects the business logic of the student performance management system, greatly simplified the tedious process of the related work, and provides a powerful decision support for management at the same time.

Users' roles of the system are two major kinds: system administrators and ordinary users. The system administrator can manage users. Ordinary users can be divided into students, teachers and other users.

Administrator: manage users, group permission distribution, information query, etc.

Teachers: students' information management, curriculum information management, score management, teaching information management, information query, score statistics, etc.

Students: scores query, etc.

Management function structure is shown as Fig. 5:

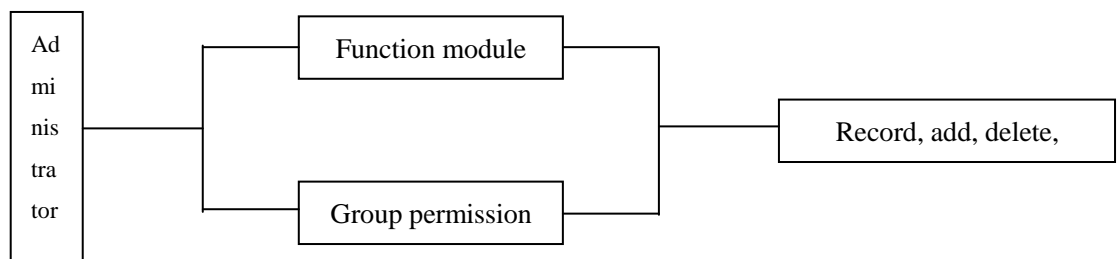


Fig. 5 Management function structure

Teachers' function structure Fig. 6

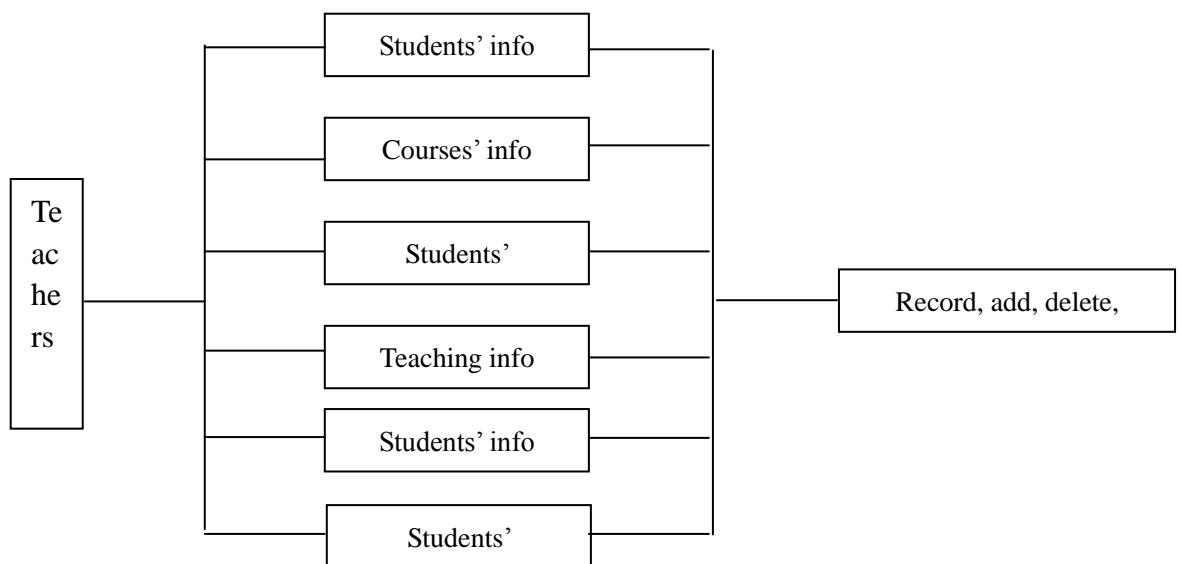


Fig. 6 Teachers' function structure

Students' function structure Fig. 7:

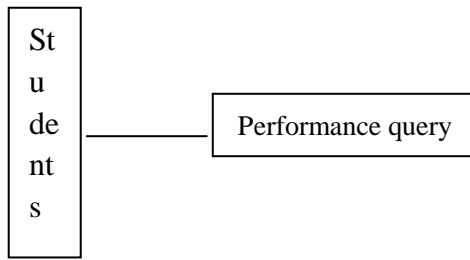


Fig. 7 Students' function structure

System design in details

System function structure. System function structure is graphic display for the overall design of function structure of the system. On the demand analysis stage, from the perspective of system development, the system function is successively divided into hierarchical structure, makes the function of each part and keeps a connection among them that is the function design. At the design stage, based on the function of each part and combined them to a system. This system is mainly used for middle school students daily management, which is based on the specified student file, and implement the function of teachers' information, students' information, course information and student performance management, as well as the corresponding function of add, delete, modify, check, statistics. The system fully reflects the status of student learning providing data basis for effective communication between parents and schools.

Decomposed the system into many parts which is smaller and easy to be established and modified. Each module has its own independence.

System functions are shown as Fig. 8:

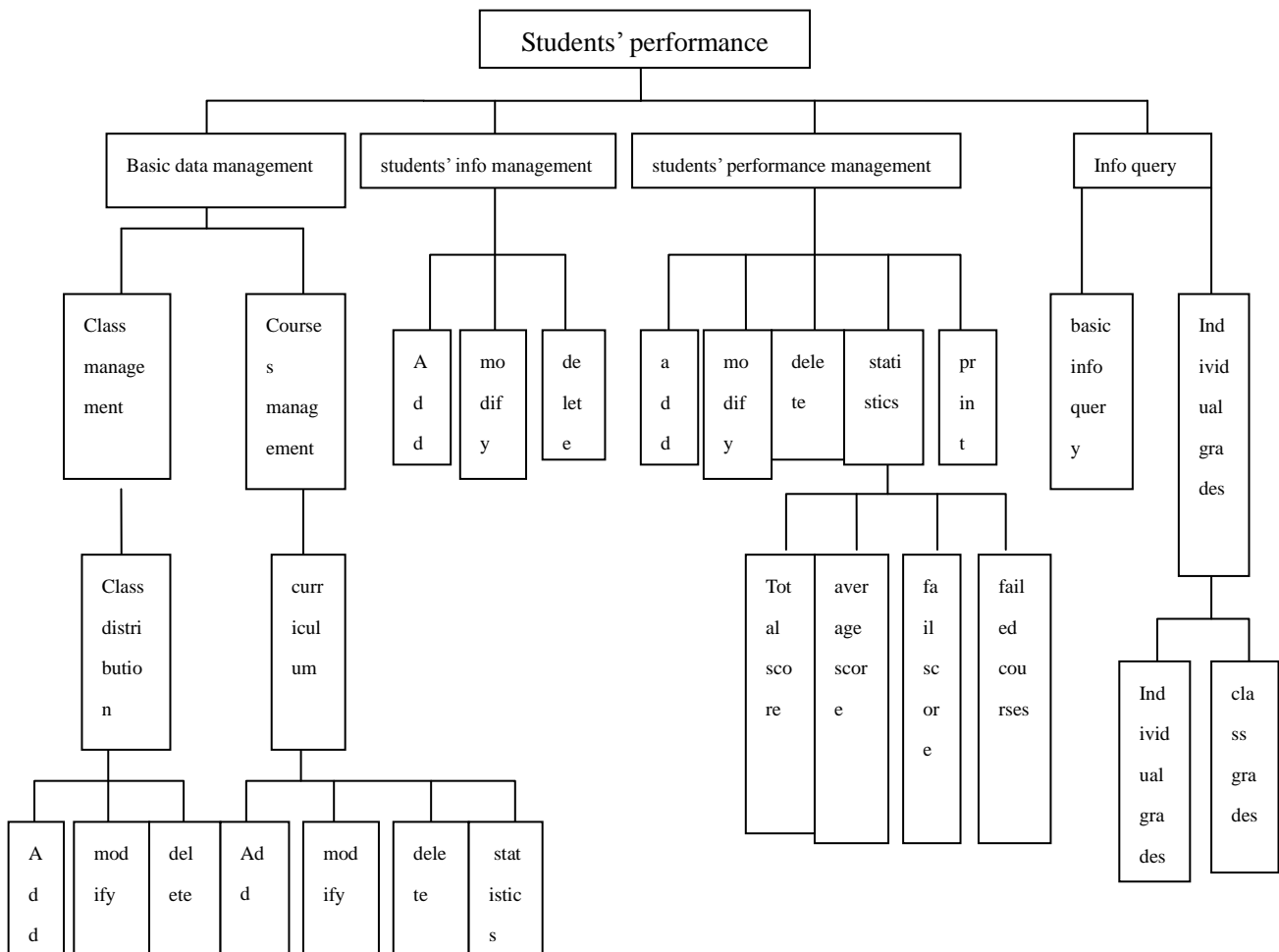


Fig. 8 System functions

System function modules' design. Teachers' basic information set

(2) Teachers' basic information management function module flow chart

Function of this module: input teachers' basic information, modify the teachers' basic information, delete teachers' basic information.

Teachers' management process is shown as Fig. 9.

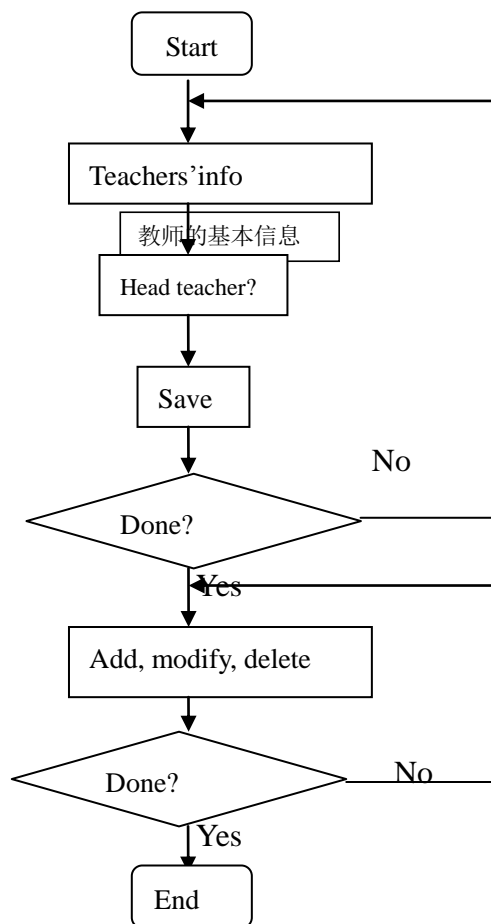
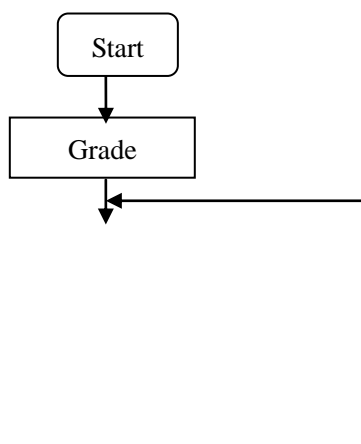


Fig. 9 Teachers' management process

Students' basic information maintenance

(2) The function module flow chart of the students' basic information management

Students' basic information process is shown as Fig. 10



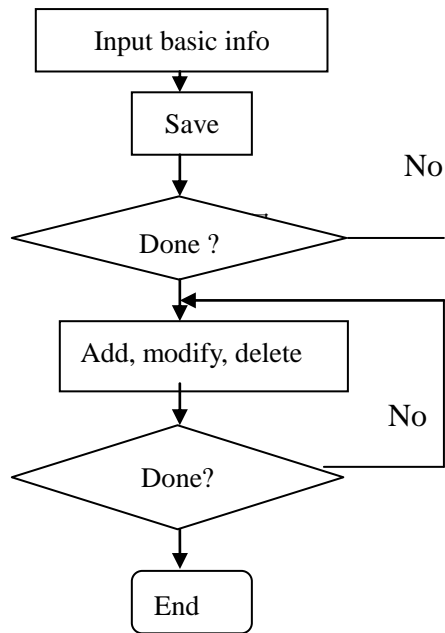


Fig. 10 Students' basic information process

Students' performance management

Students' performance record process is shown as Fig. 11

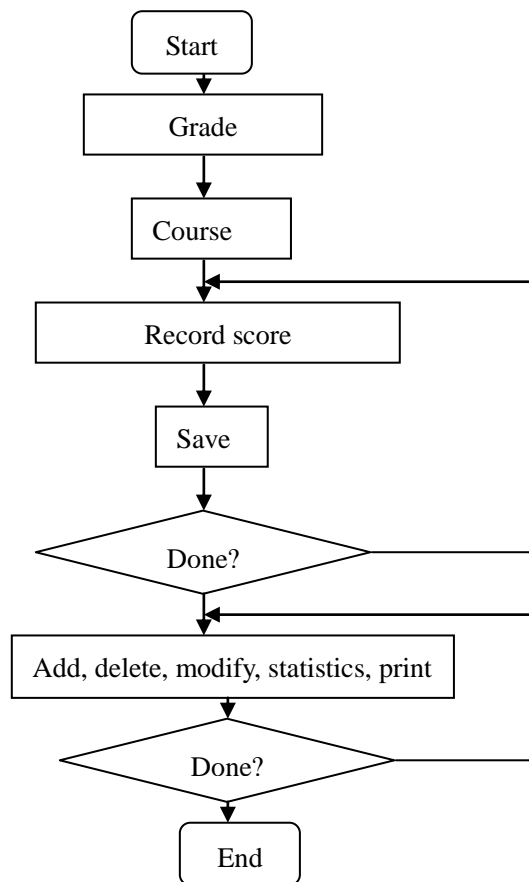


Fig. 11 Students' performance record process

System implementation

The realization of the login form. The functions of this form are: users' login, including the selection of users' permissions. According to different selected permissions displays the different functions in the main window.

The functions of this form are: displays the entire functional menu of the system. The principal and director of grade can conduct the function of basic information setting, class information setting, students' basic information management, and student performance management. The director of the grade can only manage the information student information management, class information management and performance information management of this grade. Student login can only view the personal information and performance.

The realization of teachers' information setting. The functions of the form: for principal and head teachers to add, delete and modify information of teachers.

The realization of the students' basic information maintenance. The functions of the form: for principal and head teachers to maintain students' basic information.

The realization of students' performance management. (1) Students' performance import form

The functions of the form: import the grades in the Excel files into a database. The Implementation method is to put the Excel file as data sources of datagridview control, and then insert the data from datagridview into the database.

(2) Students' performance statistics form

The functions of the form: to statistics students' performance information, including statistical results of all courses, rankings awards and recommendation and printing performance information.

(3) Comprehensive scores query form

The functions of the form: comprehensive statistics of performance, including the overall ranking, failed situation and performance ranking of each course, and print statistics result.

(4) Statistics form of single course

The functions of the form: the substitute teacher statistics the performance information of the course, including average score, number of failed students and students with score higher than 90 points.

The realization of print function module. The technique realized this module is to use encapsulated print class. Print class is a dynamic link library files, in the dynamic link library file, in which performance parameters related to print encapsulated. Parameters are only need to put into the functions in using. In using of print class, first the dynamic link library file of print class must introduced into the project, and then add quotation of namespace into the form of print function. Take using DLLFullPrint for example; when a form needs print function, pass parameters to the class of print function is only needed.

Conclusions

The title of this paper is the students' information integrated management system based on.net. The development of the system based on deep study of school management and related issues. This system is designed after a comprehensive investigation and analysis, and integrates professional theory knowledge and skills of computer.

After a series of applications process of requirements analysis, database design, system design, system implementation and system test, the design has basically completed the requirement of graduation design. The development tool of the system is Visual Studio 2005, and based on C/S mode, and uses the SQL Server 2005 Express database as the background database.

This development basically reached the expected results of design. Users in different permissions log in this system according to users' name and password, and undertake the different functional operating, which is mainly used for middle school students' daily management. This system based on the specified student files, realized the management of teachers' information, students' information, course information, and student performance management, as well as the corresponding operation of add, delete, modify, check, statistics, and so on. Finally through the test, this system has reached the design requirements of various functions, and achieved the expected design goal.

The functions of the system not only improved the efficiency of school management, but also saved administrative costs, and achieved the transformation between simple document management and office automation. However, the function of this system can be further improved, some functions can be added, such as, add users' opinions and comments on documentation, which makes the documentation management more humanized, comprehensive and reasonable.

Acknowledgements

This work was financially supported by project of Technology Department of Jiangxi Province [No 20143BBM26048]and the project of Technology Department of Jiangxi Province [No 2013BBE50051] also gives us lots of help.

References

- [1]Sa,S. Introduction of Database System. The 3rd Ed. Beijing: Higher Education Press, 2009: 52~185
- [2] Ma,J. C # Program Design and Application Tutorial. The 2nd Ed. Beijing: People's Posts and Telecommunications Publishing House, 2009: 108~265
- [3] Qian, L. Software Engineering. Beijing: Tsinghua University Press, 2009: 35~108
- [4]Xia, P. Mastering Visual C#2005 Interpreted by ZhouJing Beijing: Tsinghua University Press, 2006: 60~158
- [5] Luo, B. Classic Cases of Database Development Visual C#2005. Beijing: Water Conservancy and Hydropower Press, 2009: 45~95
- [6] Zhao, S. The System Management and Application Development of SQL Server 2005. Beijing: Electronic Industry Press, 2009: 50~108
- [7] Xue, H. Information Management System. The fifth Ed. Beijing: Tsinghua University Press, 2007: 80~135
- [8] Erich Gamma Richard Helm. Design patterns. The Basis of Reusable Object-oriented

- Software in English. Beijing: Tsinghua University Press, 2008: 65~120
- [9] Saadat Malik. Network Security Principles and Practices. Cisco Press, 2007: 87~201
- [10] Laudon and Laudon. Management Information Systems—Organization and Technology[M].7thedition. Prentice Hall, 2008: 103~158