

Design and Implementation of Postgraduate Push-away System based on ASP.NET

Yijie Yang

School of Computer Science and Software Engineering, University of Science and Technology
Liaoning, Anshan 114001, China

*1172339418@qq.com

Abstract

The system aims at students applying for pre-exemption qualification. By collecting data and basic information of students, the system reviews and ranks the students applying for pre-exemption qualification, and finally determines the list of students who have obtained pre-exemption qualification. The system includes two main function modules: student terminal and management terminal. This system is based on ASP.NET framework and SQL Server database, so that the front and back end are separated.

Keywords

Graduate Student Push-away System; ASP.NET; SQL Server.

1. Introduction

1.1 Background of the Project

In the graduate education of colleges and universities, the promotion and exemption system is an important selection mechanism. It provides excellent undergraduates with the opportunity to directly study for master's degree or doctor's degree without taking part in the national postgraduate entrance examination. At present, China's higher education has entered the popularization stage, and the enrollment scale of graduate education has exceeded 1 million in 2023. The enrollment system in the entrance link plays a key role in the quality of graduate education [1]. The recommended examination exemption system has become an indispensable part of China's master enrollment system [2]. Graduate student exemption system is a set of software system customized and developed to solve all kinds of information problems faced by colleges and universities. The system supports authorization management according to the multi-layer and hierarchical permission model, and administrators of colleges and universities and business sections can recruit according to the system [3]. At present, the push and exemption of graduate students in colleges and universities involves a lot of student information collection, review and ranking work, and the traditional manual processing method has a large workload, low efficiency and error-prone. The traditional push and exemption qualification evaluation method often requires a lot of human and material resources investment, and is prone to problems such as information entry errors and not timely review.

Therefore, the design and implementation of college graduate student push exemption system based on ASP.NET has become an important topic, the system can realize automatic information collection, review and ranking, through the system information collection and ranking function, push exemption qualification evaluation can be more objective and fair. The design of the system makes it easy for students and administrators to manage and query information.

1.2 Purpose and Significance of the Project

The design and implementation of graduate student exemption system based on ASP.NET is of great significance for the accuracy and fairness of the qualification evaluation of university exemption. Improve the efficiency and accuracy of assessment: the traditional method of qualification assessment often requires a lot of manpower and material resources investment, prone to information input errors, audit is not timely and other issues. Based on ASP.NET, the system can realize automatic information collection, review and ranking, which greatly improves the efficiency and accuracy of assessment.

Provide a fair competition platform: whether it is a national unified examination or recommended exemption, its essence is as a talent screening way to screen and divert students, and its essence is the allocation[4] of higher education resources. Through the information collection and ranking function of the system, the evaluation of the qualification can be more objective and fair. The system can evaluate students based on comprehensive factors such as academic performance, awards and papers, avoiding the intervention of human subjective factors and providing a fair competition platform for students.

Convenient information management and query: The design of the system makes it easy for students and administrators to manage and query[5] information. Students can log in to the system at any time to view the news announcement released by the school, the relevant information of the college, the information of the professor, their own push free comprehensive scores, ranking and review status. This form can better let students quickly understand the school's push and avoid system and the school's college situation, but also can clearly know their ranking status. Administrators can easily manage the school's push and avoid information, student materials and bonus points, which improves the convenience of information management.

Technology application and promotion value: Through the research and implementation of this paper, the college graduate student push and avoid system based on ASP. Net can be used as a model of technology application and promotion, and provide reference[6] for other colleges and universities or similar selection mechanisms. ASP.NET, Bootstrap and other technologies used in the system also have broad application prospects and promotion value[7].

1.3 Related Technologies and Methods

Asp. Net WebForms is a Web application development framework based on server. It provides a series of controls and functions, so that developers can easily create interactive and dynamic Web applications. This system uses ASP. Net WebForms as the main development framework, used to realize the front-end pages of the system and the interaction with the back-end logic. Bootstrap is a popular front-end development framework that provides responsive design and predefined style and layout components, which can help developers quickly build beautiful and compatible Web interfaces[8] for different devices. In this system, Bootstrap is applied to the design and layout of the front-end page, so that the system has a good display effect on different terminal devices. AJAX is a technology to realize asynchronous data exchange in Web application. In this system, users obtain and submit data asynchronously through AJAX, and realize the non-refresh operation and data exchange of some pages. SQL Server is a relational database management system, which is used to store and manage the data required by the system. In this system, SQL Server is used as a back-end database to store and manage student personal information, student material information, college information, news bulletin information, professor information, homepage content information, and grade ranking information. Through the use of SQL Server, we can efficiently store, query and manage data.

2. Analysis of System Requirements

2.1 Feasibility Analysis

2.1.1 Economic Feasibility

The system reduces the time and effort of manual processing by automating the audit and ranking process. This will improve the efficiency of school push and avoid management and reduce the cost of human resources. The system provides a convenient and reliable platform, students can easily submit application materials and view the review status, administrators can quickly access and manage the information. From the perspective of development cost, the use of this system can reduce the time and energy investment of the development team. The automation function and the existing technology base of the system can reduce the complexity and workload of the system development. Developers can take advantage of existing technologies and tools, such as JQuery, to quickly build the front-end interface and functions of the system. This can reduce the time for developers to write duplicate code and improve development efficiency. In addition, the extensibility and flexibility of the system can also reduce the cost of maintaining and upgrading the system in the future. To sum up, there is no obstacle in terms of technical feasibility.

2.1.2 Technical Feasibility

Asp. Net is a powerful Web application development framework that provides a wealth of features and tools that enable developers to quickly build stable and reliable Web applications. Asp. Net Web Forms is a part of ASP. Net framework, it provides a development method based on event-driven model, simplifies the development process of user interface, and provides a wealth of controls and components to build interactive user interface. SQL Server is widely used for data storage and management of large applications. It has high performance, scalability and security, suitable for dealing with a large number of student data and system information. Bootstrap is a popular front-end development framework, which provides a set of easy-to-use styles and components that make the system's user interface design with responsive layout and good user experience. In summary, the graduate student push and avoid system based on ASP.NET has good technical feasibility.

2.1.3 Social Feasibility

ASP.NET based system for postgraduates has good feasibility in the social level. It improves the efficiency, provides information sharing and transparency, provides a fair competition environment, and provides a convenient management platform for students and administrators. These characteristics make the system have the potential of practical application and promotion in the society. I use ASP. Net as the development framework, I can independently develop and customize the system to meet the specific needs and processes of graduate students. To sum up, the system is feasible in terms of social feasibility.

2.2 System Requirement Analysis

The postgraduate push and avoid system needs to provide a perfect and easy to operate online education platform for student users, and provide a clear function, clear module, convenient and quick management platform for background administrators.

2.2.1 Foreground Function Analysis

The system front desk is the role of student user. Student users can view and operate the system after registering and logging in. Student users have the functions of browsing homepage content, applying for postgraduate promotion and exemption, personal information management, checking audit status and viewing personal scores.

- 1) Browse the homepage content: Students can view the homepage content, view and download the news announcement content in the homepage, view the college introduction information, and view the professor information.
- 2) Personal information management: students can modify and improve their personal information.

3) Application for graduate student promotion and exemption qualification: Student users can apply for graduate student promotion and exemption qualification by improving their personal information, submitting transcripts, award materials and thesis materials.

4) Check the review status: Student users can check the review status after submitting the corresponding materials.

5) Check personal scores: Student users can check their personal scores after the audit is passed.

2.2.2 Background Function Analysis

The system background is the administrator role, login through the administrator account password. The administrator role has the homepage information management, news bulletin management, professor information management, student information management, college management, review the materials submitted by students, and view the score ranking.

1) Homepage information management: Administrators can add and delete homepage content.

2) News bulletin management: administrators can upload news bulletin attachments and view the uploaded news bulletin attachments.

3) Professor information management: administrators can add, modify and delete professor information.

4) Student information management: administrators can add, modify, delete and query the personal information of student users, and view the transcripts, award materials and thesis materials submitted by student users.

5) College management: Administrators can add, modify and delete college information.

6) Review of student materials: Administrators can review the information of transcripts, award materials and thesis materials submitted by students.

7) Check the grade ranking: Administrators can check the grade ranking of students in all colleges.

2.3 Demand Model

2.3.1 User Case Analysis

Student users need to fill in the user name, student number, password, gender, mobile phone number and email to register an account, and log in through the user name and password before they can view and operate the system. After login, you can browse the homepage content, personal information management, apply for graduate students to push the qualification, check the review status and view personal results. The student user use case diagram is shown in Figure.

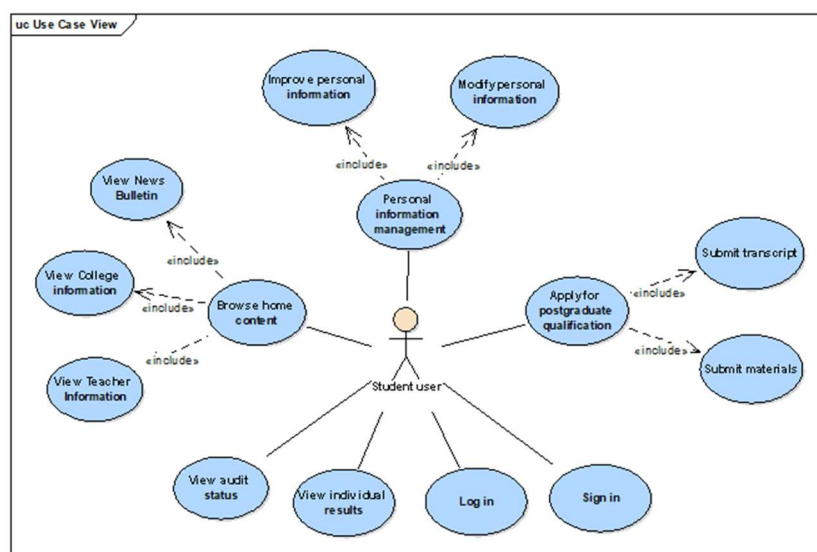


Figure 1. Student user use case diagram

2.3.2 Administrator Use Case Analysis

The administrator user needs to log in through the administrator account password. The administrator role has homepage information management, news bulletin management, professor information management, student information management, college management, review student submitted materials, and view grades ranking. The administrator user use case diagram is shown in Figure.

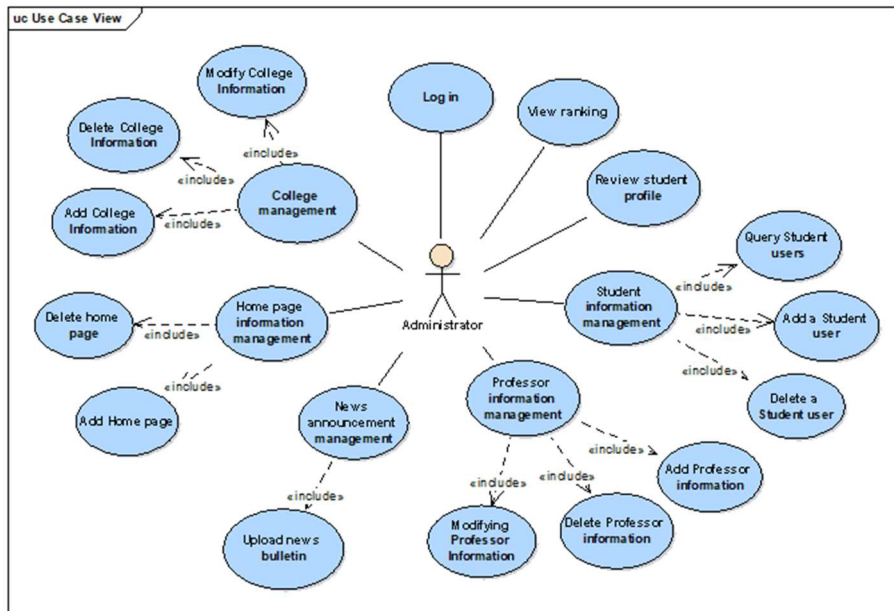


Figure 2. Administrator user use case diagram

3. Overall System Design

3.1 System Development Environment

The system uses Visual Studio 2022 as an integrated development environment (IDE) for developing and writing system code. It provides a wealth of features and tools for creating, debugging, and deploying a variety of applications; And the use of SQL Server as a relational database management system (RDBMS) for storing and managing the system's data. You can use SQL Server Management Studio (SSMS) to manage your database, execute queries, and maintain your data.

3.2 System Framework Design and Configuration

The system uses ASP. Net Web Forms as a Web application framework for building dynamic, event-driven Web applications. It is based on ASP. Net technology and provides a wealth of controls and functions for creating user interfaces and handling user input; Using Bootstrap, a popular front-end development framework for building responsive and mobile-first Web interfaces. It provides a set of CSS and JavaScript components that make it easy for developers to create beautiful and feature-rich user interfaces.

4. Summary

The system test is to verify whether the function of the graduate student push and avoid system has been developed correctly according to the requirements, and to ensure that the system can work normally in various circumstances. The test process includes function test, performance test and user interface test. After development and testing, our system has basically realized the design requirements, and through the normal use and feedback of users. School administrators and student users can easily use the system, which improves the efficiency and accuracy of pre-push and avoid management.

In summary, based on ASP.NET, the university graduate students push and avoid system has achieved gratifiable results in the graduation design work, and provides an efficient, convenient and reliable push and avoid management platform for the school. However, it is still necessary to further improve and perfect the system to meet the changing needs. We will continue to pay attention to user feedback, and work on solving existing problems in the follow-up work, and further improve the function and performance of the system to achieve higher user satisfaction.

References

- [1] Liao Yutong. Research on the reform of the recommended Exemption System for graduate students in China [D]. Wuhan: Wuhan University of Technology, 2021.
- [2] Li Hongrun. On the original intention and Effect of the "Deduction and Exemption System" for postgraduates [D]. Shanghai: East China University of Science and Technology, 2020.
- [3] Wu Runde. The system of postgraduates' promotion and exemption. Gansu Province, Lanzhou Yizhi Information Technology Co., LTD., 2020-02-17.
- [4] Dong Yadong. Research on the Fairness of China's Master's Recommended exam-Exemption System [D]. Wuhan: Huazhong University of Science and Technology, 2016.
- [5] Huang Xuemin. Design and Implementation of University Student Information Management System [D]. Nanchang: Jiangxi University of Finance and Economics, 2017.
- [6] Liu Lihua. Design and Implementation of University Teaching Status Information Platform Based on C# [D]. Nanchang: Nanchang University, 2016. (in Chinese).
- [7] Tian Yuan. Analysis on the Design of Education Informationization Information Release System [D]. Wuhan: Hubei University of Technology, 2016.
- [8] Jamal, Yamani, Mundzir, Vidy, Idris Nasruddin Bin, Rosita Isa, Gunawan. Design and Implementation of Web Application for Attendance List of Lecturers Using Codeigniter and Bootstrap Framework [J]. Journal of Physics: Conference Series, 2021, 1807(1).