



Design and Construction of Campus Security Management Platform Based on Web

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Abstract. Under the background of “science and technology promote safe construction”, colleges and universities should adhere to innovation drive, strengthen campus security prevention and control construction, and improve the level of security work. In this regard, this paper takes the campus security work as the research object, adopts the specific advantages of network information technology, database technology and computer application technology, builds a Web-based campus security management platform, and puts forward a set of practical and comprehensive solutions for many problems existing in the current work. The system adopts B/S architecture and uses Bootstrap as the front interactive page framework to complete the development of client products. At the same time, on the Web Server side, PHP language is selected as the development environment, and Yii framework is used to complete the construction of various business logics and the deployment of API data interfaces. The function setting of the system will fully cover the whole process of campus safety work, which not only fully meets the practical needs of teachers and students, but also provides an event reminding mechanism and YoY and MoM data processing algorithm models for managers, which not only improves the work efficiency, but also promotes the informatization and intelligent development of campus safety management.

Keywords: Web technology · Campus security · PHP · Computer application

1 Introduction

As the main body of education and training professionals, colleges and universities shoulder the important responsibilities of preventing security risks, dealing with emergencies, ensuring the safety of teachers and students and maintaining campus stability while bearing the health and growth of students [1]. However, with the gradual deepening of China’s educational system reform, the scale of running colleges and universities is expanding rapidly, the level of campus environment is complex, and the rapid changes of external social environment cause frequent campus security problems. In addition, the hidden dangers of campus security are characterized by high density, wide range and difficulty in investigation, which makes the safety management in colleges and universities more difficult. In view of this, this paper holds that colleges and universities should make overall plans for campus security management, improve the campus security responsibility system and management system, mobilize teachers and students at

all levels to join the campus security construction, take into account four aspects: rules and regulations, education and publicity, hidden trouble investigation and emergency treatment, and actively make use of the practical characteristics of network information technology, database technology and computer application technology to build a campus security management platform based on Web, so as to make an attempt to promote the construction of campus security information center in the new era. The function setting of the system will completely cover the whole process of campus safety management, form a unified management application carrier, and provide a set of scientific, efficient and advanced management tools for front-end interactive operation, network transmission, data storage, multi-service concurrency, multi-network node management and other issues. It eliminates the troubles of information island and loose resource utilization under the traditional working mode, greatly improves the efficiency of campus safety management, and makes due contributions to building a harmonious and safe campus environment [2].

2 Development Process

According to the system development requirements and the use requirements of the above key technologies, the configuration and deployment of the development environment can be completed. The overall development environment of campus security management platform is WAMP, that is, Windows + Apache + MySQL + PHP mode [3]. Therefore, the operating system is Windows10.0 x86-64bit, the basic development environment is PHP, the version is 8.1.9, and the integrated development tool is PHPStorm 2020.1. The Web server is Apache 2.4 and the database is MySQL 5.7.

The installation and configuration of PHP goes through two parts: the configuration of development environment and the configuration of production environment, and it needs to work together with Apache server. PHP is combined with Apache in the mode of module. The specific steps are to open the configuration file of Apache, locate it with the keyword "LoadModule" and configure the module to be loaded [4]. The installation configuration of Yii framework needs Composer (PHP dependency manager) and the composer asset plug-in must be installed, which is used to implement npm and bower in a compatible way [5]. Through the introduction of the above key technical theories, the overall environment of system development, the configuration of related software and tools are determined, and the feasibility of the overall project of campus safety management platform based on Web is also clarified.

3 Detailed Function Implementation

3.1 User Side

After the user logs in successfully, the system will automatically jump to the homepage interface. It mainly contains Banner dynamic picture news, campus security trends, policies and regulations, safety education science popularization, safety lecture hall and other content sections, so that users can quickly obtain all kinds of information about campus security.

In addition, under the section of safety lecture hall, the system will provide video courses on safety knowledge, the contents of which are mostly in line with the daily campus life and various hot events occurring in the current society [6]. For example, telecom fraud, natural disasters, campus network loans, food safety, case-based and situational teaching can resonate more quickly, making safety publicity and education deeply rooted in people's hearts.

3.2 Administrator Side

After logging in to the system, the administrator will have the authority to complete the uploading, maintenance and management of all the contents of the system, so as to ensure the normal operation of all the functions of the system [7]. At the same time, the system can support administrators to complete the investigation and management of potential safety hazards on campus, and form corresponding treatment reports, so that administrators can quickly and intuitively grasp the safe operation of various areas on campus, realize the full-cycle management of potential safety hazards, and improve the ability to deal with emergencies.

In the process of security risk investigation, the administrator can input the found campus security risks into the system in time and initiate the risk management process. The system will initiate the investigation notice according to the region, department and person directly responsible for the security risks, and complete the security risk investigation and treatment plan according to the "four-set" principle [8]. In the process of troubleshooting, the system will update the work processing status in time and send out an automatic reminder to improve work efficiency. The realization of the automatic reminder function needs to build a workflow in the system, that is, the TpfLOW engine designs and manages the investigation and treatment process of potential safety hazards, and generates the corresponding process log, which can be applied in the Web system. Figure 1 shows the key code for calling the TpfLOW workflow [9].

In addition, the system will also give the administrator user data analysis and statistics authority. Under the data management module, administrators and users can see all kinds of data analysis charts at any time, including year-on-year and comparative data of potential safety hazards and campus safe operation, as well as data information such as the completion rate and unfinished rate of investigation and treatment of potential safety hazards. The system will provide YoY and MoM data processing algorithm models to automatically complete the analysis and processing of various data. As shown in Formulas 1 and 2, they are the calculation formulas of YoY and MoM algorithm models, where M represents monthly potential safety hazard data and N is the monthly potential

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{{@yii flow\Api::wfacess('status',[ 'status'=>$v->status])}}
{{@yii flow\Api::wfacess('btn',[ 'id'=>$v->id,'type'=>'news','status'=>$v->status])}}
{{@yii flow\Api::wfacess('log',[ 'id'=>$info->id,'type'=>'news'])}}

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Fig. 1. Yii framework calls TpfLOW workflow code

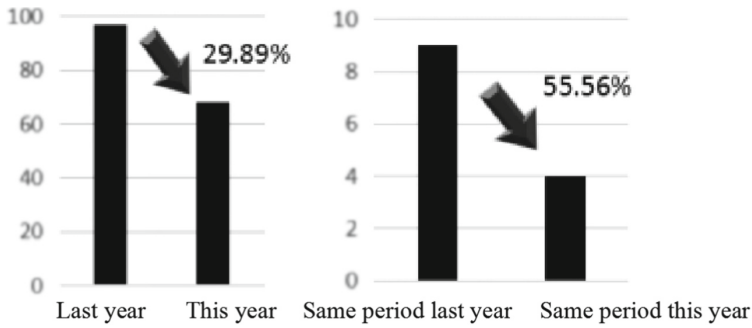


Fig. 2. YoY, MoM algorithm model calculation results

safety hazard data of the previous year [10]. The final calculation results will be displayed visually in the form of charts, as shown in Fig. 2.

$$Q = \frac{\left(\sum_{i=1}^{12} M_i - \sum_{i=1}^{12} N_i \right)}{\sum_{i=1}^{12} N_i} \times 100\% \tag{1}$$

$$K = \frac{(M_i - M_{i-1})}{M_{i-1}} \times 100\% \tag{2}$$

4 Conclusion

With the aim of improving the effectiveness of university safety management, this paper starts from four aspects: rules and regulations, education and publicity, hidden trouble investigation and emergency treatment, builds a campus safety management platform based on Web with the help of network information technology, database technology and computer application technology, and puts forward a set of practical and comprehensive solutions to solve many problems in university safety management.

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