ISSN: 2688-9323

Design and Implementation of Graduate Employment Information System based Cloud Platform

Juan Zhang [a], Taizhi Lv [b]

School of Information Technology, Jiangsu Maritime Institute, Jiangsu Nanjing 211170, China

[a]1052871890@qq.com, [b]lvtaizhi@163.com

Abstract

In the face of the severe employment situation of current graduates, it is very necessary to analyze the situation of graduates. In order to accurately reflect the status of students' graduation information, this paper designs and implements the employment analysis and statistics system. The system is developed using SSM technology, and is deployed through the MySQL database storage through the Docker cluster. Through complete testing to determine that the system meets the design requirements, it can effectively manage the thesis.

Keywords

Graduate Employment Analysis; SSM; MySQL; Docker.

1. Introduction

Due to the rapid development of the Internet in recent years, all walks of life have set off changes in Internet technology. Each industry has its own management system, and the education industry is no exception. In schools, the information management system of graduates of higher vocational colleges plays a vital role in the normal operation of teaching work [1]. Therefore, graduate information management system should be responsible for graduation information inquiry, graduation information statistics, graduation information management, etc. The above systems are integrated for unified management, and an automated tool is needed for overall management to be able to timely and accurately reflect the status of the graduation information. In order to better adapt to the current school management needs and avoid manual management these shortcomings need to develop graduate employment information management systems. It is of practical significance to introduce informatization into graduate employment analysis. The development of graduate employment management platform provides an important means for the analysis and improvement of employment work.

2. Requirement Analysis and Functional Desgin

2.1. Requirement Analysis

Students log in to the system and enter employment management, and can add their own employment information. The teacher login system enters the employment management. According to the department's department, the employment information of the students can be reviewed or not passed, and the employment information can be viewed.

Teacher login system, entry into employment management, employment information statistics, can view the employment rate of each professional graduate in each school year, the bar graph of the counterpart rate, the pie chart of the salary distribution of the graduates of each school year, and the corresponding employment rate of each professional. Rate change chart for each school year.

ISSN: 2688-9323

The system must ensure adaptability and scalability, so the platform must be developed, and the original platform in the school can be docked. At the same time, the graduation information management system is open and needs to provide external interfaces. The system should be easy to operate, and it should be easy to use. Because there are many users, it is impossible to train one by one, and only use it by yourself, so ease of use is one of the basic principles of platform design. The system ensures platform security by combining with a unified authentication platform.

2.2. Functional Design

Graduate employment information management is divided into three modules: teachers, students and administrators. The module function diagram is shown in figure 1.

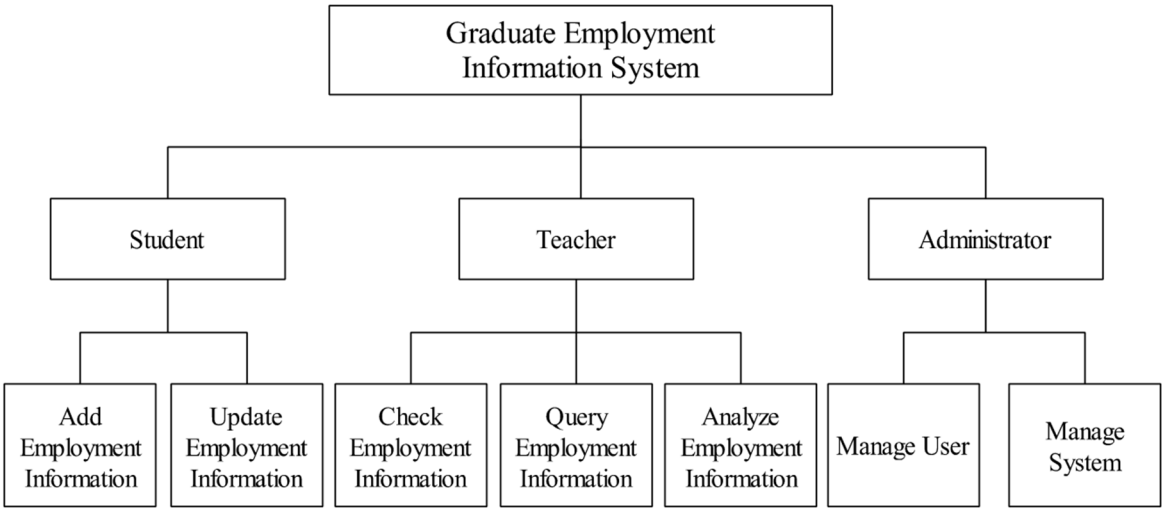

Figure 1. Functional Model diagram

After the teacher logs into the system, it can check whether the employment information input by the student meets the requirements. If it does not meet the requirements, then the audit can not be passed, otherwise the audit will pass. Enter employment management, employment information statistics: You can view the employment rate of each professional graduate in each academic year, the bar graph of the counterpart rate, the pie chart of the salary distribution of the graduates of each school year, and the rate of each professional employment rate for each academic year. Change the fold line comparison chart.

After the student logs into the system, he or she can add and modify his or her employment information. The teacher login system enters the employment management. According to the department's department, the employment information of the students can be reviewed or not passed, and the employment information can be viewed.

After the administrator logs in to the system, it can check whether the employment information input by the student meets the requirements. If the requirements are not met, the audit can not be passed, otherwise the audit will pass. Enter employment management, employment information statistics: You can view the employment rate of each professional graduate in each academic year, the bar graph of the counterpart rate, the pie chart of the salary distribution of the graduates of each school year, and the rate of each professional employment rate for each academic year. Change the fold line comparison chart. It is also possible to manage the above basic information.

ISSN: 2688-9323

3. System Implementation

The system is based on the Struts2+Spring+IBATIS (S2SI) framework. S2SI is an excellent MVC application framework [2]. The Struts2 build Web layer, the business layer integrated by Struts2 and spring, and the persistence layer integrated by spring and JPA, conform to the hierarchical structure of the MVC pattern. S2SI takes spring as the core component, integrates Struts2 upwards, and integrates JPA downwards, giving full play to the advantages of each of the three, with good low coupling, scalability and reusability.

3.1. Model Layer

The system model layer is mainly implemented by the database connection pool, the entity class (the bean class or the entity class), and the Dao (data operation object) class.

(1) Database connection pool

Using a database connection pool can reduce the inefficiency of the platform caused by frequent database connections. The platform uses DBCP to complete the implementation of the connection pool [3]. The flow chart is shown in figure 2.

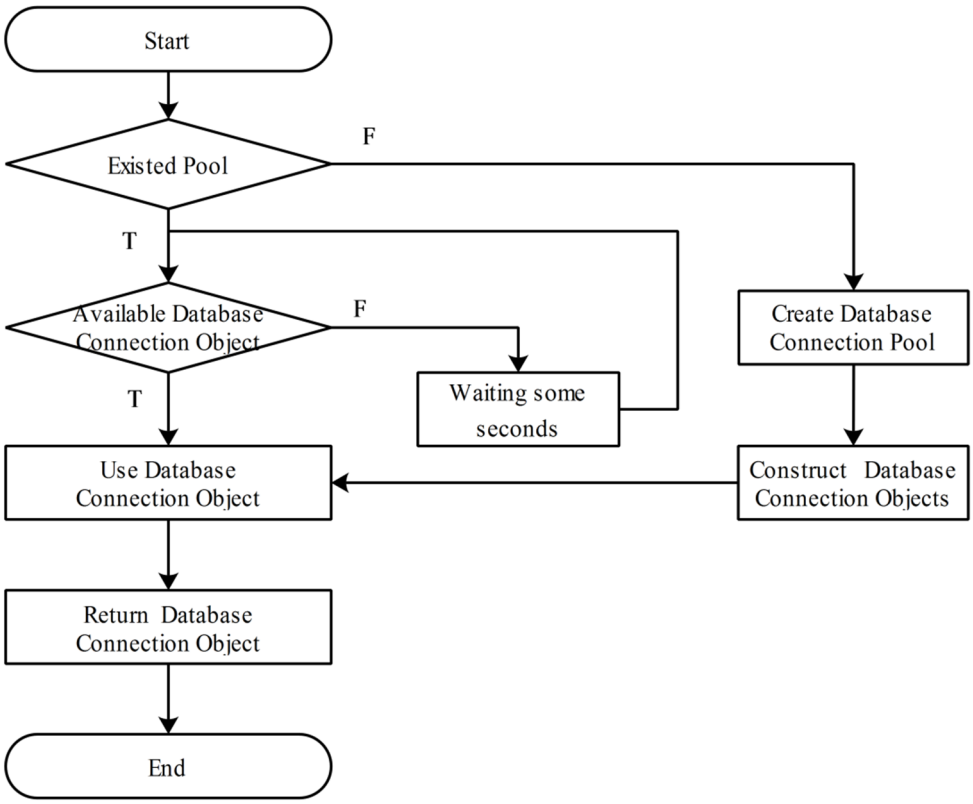

Figure 2. The flowchart of database connection

(2) Data Access Object

The system encapsulates the BaseDao class, which inherits org.springframework.orm. IBATIS3.support. JPA DaoSupport is to simplify operations and provides basic CRUD (create, retrive, update, delete) functions. Other Dao in the platform are modified by inheritance. , simplifies the operation of the database. In order to provide most of the operations, the BaseBao provides the following methods. BaseDao is the parent class of all classes under the Dao package in the platform. It encapsulates the operations of adding, deleting, and changing. Other

ISSN: 2688-9323

dao classes inherit the class and have the basic functions of operating the database. Expand under these four basic functions.

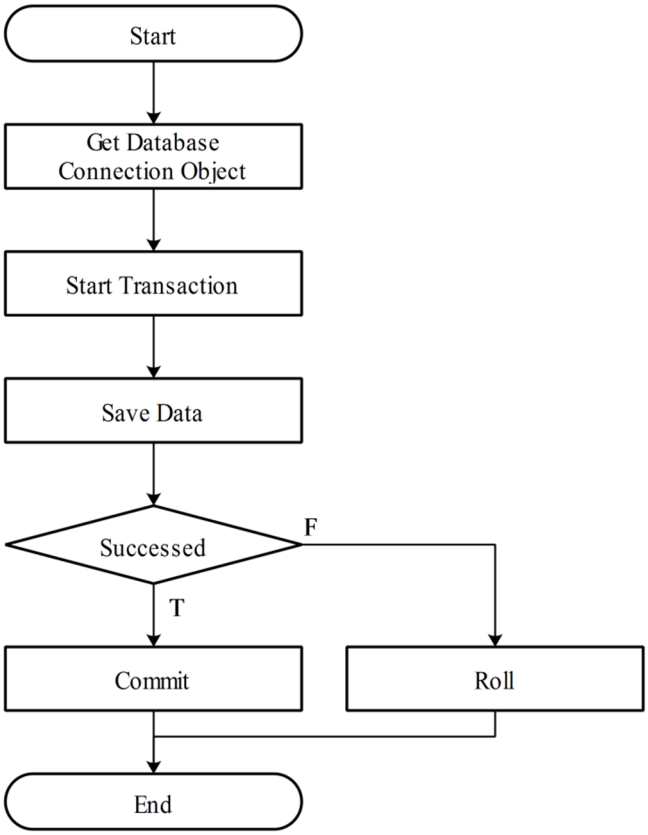

Figure 3. The flowchart of data operation

Modification and deletion and the operation of the ID query are basically similar to the save operation, and will not be explained one by one. Figure 4 shows how the records query function by paging is implemented.

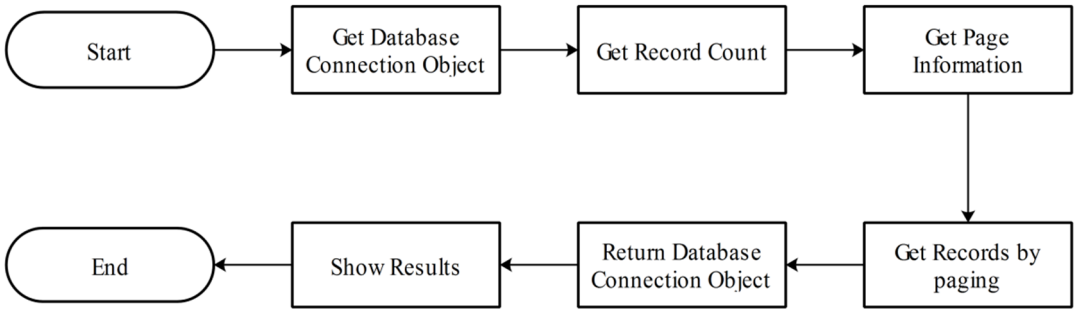

Figure 4. The flowchar of records query by paging

3.2. Controller Layer

This platform uses the struts2 framework, and the control layer consists of the core controller FilterDispatcher and the user-written business controller [4]. The core controller FilterDispatcher is the basis of the Struts 2 framework and contains the control flow and processing mechanism inside the framework. The business controller action and business logic components are required to be implemented by the user. While developing Action and business

ISSN: 2688-9323

logic components, users also need to write relevant configuration files for use by the core controller FilterDispatcher.

When the user's request is ResourceTypeSaveAction.action, the framework calls the bean as the execute method of the ResourceTypeSaveAction class to complete the corresponding request, and the execute method calls the dao layer to complete the corresponding business logic. When the user returns are success, the page jumps. Go to the page specified by result for name=success. When an exception occurs, the page jumps to the page specified by result of name=input.

3.3. View Layer

The Graduate Employment Information Management System uses Java Server Pages (JSP) to implement the platform view layer functionality. In the generation of the repository platform, there is no business logic code for every JSP page.

4. Cloud Deployment

To improve reliability and throughput, the system implements distributed deployment based on Nginx + Docker. Docker containers start very quickly, performance is close to native machines [5]. Docker containers built on the cloud platform, Windows, Linux and other systems greatly simplify the process of continuous integration and testing.

5. Conclusion

Based on the B/S structure, this paper builds a management system that provides teachers and students with convenient management information. It uses Eclipse software as the development environment, MySQL database to store data, and uses SSM technology to complete user login, administrator user management, and employment. Management, employment review, employment analysis and other functions. The system interface is simple and generous, easy to operate and easy to understand. Compliance with MVC pattern development and complete testing ensures system stability, flexibility, and ease of maintenance.

Acknowledgements

This paper was supported by the scientific research project of vocational education by CCF(CCFVC2018016), the vocational education research project of industrial and information (2018-2019-57), the funding of Jiangsu QingLan outstanding young teacher project and the funding of professional leader high level study project for Jiangsu higher vocational institute teachers.

References

[1] Popoola S I, Atayero A A, Okanlawon T T, et al. Smart campus: Data on energy consumption in an ICT-driven university.[J]. Data in Brief, 2018, 16(C):780-793.

[2] Zou Y M, Zhao Z. Design and Implementation of Novelty Search Platform Based on S2Si+ jQuery Framework[J]. Computer & Modernization, 2012, 1(6):212-214.

[3] Fei L. A Method of Design and Optimization of Database Connection Pool[J]. IEEE, 2012, 2:272-274.

[4] Roughley I. Practical Apache Struts2 Web 2.0 Projects[J]. Tailieu Vn, 2008, 89(1):77–81.

[5] Boettiger C. An introduction to Docker for reproducible research[J]. Acm Sigops Operating Systems Review, 2015, 49(1):71-79.