

E-Commerce Middle Office Management System Based on Springboot

Hejing Wu

East University of Heilongjiang

Heilongjiang, 150086

E-mail: 499917928@qq.com

Abstract—This topic takes Vue framework as the front-end framework of e-commerce middle office management system, uses springboot framework as the construction mode of back-end framework, and uses Java to write function code. [1] The data of the system is stored in MySQL database, which can be provided to the employee end of registered employees and the management end of managers. Employees can complete registration and login through the e-commerce middle office management system, and then view department information, store information Warehouse information and view order information and add, view commodity file information. The system administrator manages employee information, department information, store type information, store information, warehouse information, commodity file information and order information through the management end. Through the realization of the different functions of the above employees and administrators, the normal operation of the system is ensured, and the process involving stores, commodities and orders is monitored, So as to make a complete set of e-commerce middle office management system that can be provided to all kinds of users.

Keywords- *E-Commerce Middle Office Management System; Order Management; Vue. Framework; Springboot Framework; Mysql Database*

I. INTRODUCTION

At present, with the increase of the number of merchants engaged in e-commerce business and the rapid increase in the transaction volume of e-commerce platforms, the traditional business management methods have obviously been unable to adapt to the effective control of merchants and orders, and the concept of business middle office can realize the digital output and precipitation of the whole process from the store to the transaction into visible data, which can provide the e-commerce platform with omni-channel operation capabilities, so that all the data related to the order can be shared and common. [2]

The e-commerce middle office management system developed by the project is built on the SpringBoot framework, the system's functional code is written in Java language, the system's operation interface is designed and implemented through VUE technology, and all the data of the system is accessed and invoked using the MySQL database, which can be provided to employees and administrators for two different users to use. [3] The ultimate development purpose of this project is to provide users with an e-commerce middle office management system that can operate stably and meet the basic usage needs, so that users can realize the digitization of the whole process of

department information, store information, warehouse information, commodity file information and order information through the e-commerce middle office management system, and provide certain data support for the user's business decisions.

The SpringBoot Development Framework is a lightweight framework that can support the development of commercial application systems, which can be combined with a large number of development frameworks to be used as a development technology for application system development process. The SpringBoot development framework also supports aspect programming, which can be introduced to directly automate the configuration of the project, saving a lot of time in environment configuration; in addition, it can also complete the call to a variety of interfaces, saving the resource occupation of the system itself; the program developed by the framework can be used with the Tomcat server to make its deployment more convenient.

Tomcat Server is a background server that allows users to deploy programs with only a few very simple configurations, greatly simplifying the difficulty of their deployment. After the enterprise copies the developed web system program directly to the relevant location of the Tomcat server, it can be run and provided to all kinds of users after a simple modification of the web .xml or related files.

VUE technology is a lightweight programming technology developed by using JavaScript for front-end interface development, which is mainly through HTML technology to complete the presentation of the interface, and the code programming is done by using VUE technology. In VUE technology, the association between the view and the model can be completed by using the provided ViewModel, and the binding and access

to the data can be completed directly by modifying the logical business rules, so as to realize the display on the HTML interface. [4]

MySQL is a commonly used database system for web system development, which can not only complete the above work, but also use the provided visual management environment to complete the database table creation and execution of data queries and other related actions, of course, can also meet the basic needs of data processing in different languages.

The Java language is a high-level language based on the C++ programming language and introduced in response to the needs of multi-platform applications. The Java language can support the development of applications with interfaces; it can also develop web pages of applets for complete stage coding; it can take advantage of existing components and can run on multiple platforms with only one compilation, which greatly improves the efficiency of development programs.

The overall functional design of the e-commerce middle office management system is shown in Figure 1 below.

II. SYSTEM DESIGN

The e-commerce middle office management system is a web order management system that can be applied to the order aggregation management scenario, which can be provided to employees to complete registration and login, after logging in, you can view personal information and modify passwords in the personal center interface, employees can also view department information, store information and warehouse information, and can also enter order information and commodity file information into the system; after the administrator logs in, you can also manage department information, store and type

information. Order information and product file information entered into the system by employees can also be maintained and processed. Through the design of the above employee and administrator functions, a complete and operational e-commerce middle office management system is formed. [5] The employee registration process of the e-commerce middle office management system developed in this topic is that if any employee wants to enter the e-commerce middle office management system to view the warehouse information and add relevant information such as orders and commodity files, he must first select the registration button to enter all the registration information into the Chinese side of the system. During registration, employees are required to enter all relevant information such as employee job number and employee name into the edit box to complete the registration in time, and carefully fill in the password, contact number and position information. If one item is omitted, it will be prompted that this item cannot be blank.

Until all the information is filled in and confirmed to be correct, click registration to register successfully, Only when any registration information is not entered, it cannot be registered successfully. The employee login process of the e-commerce middle office management system developed in this topic is to enter the system and complete the filling of main information. This step can be carried out only after the registration is successful. Specifically, you can enter the login information into the edit box, including user name, password and other relevant information, and select the user role, including administrator and employee module, If the e-commerce login information is not successfully entered or the password is not correct, the employee will be prompted to log in to the middle console. Otherwise, if the login information is not successfully entered or the login information is not correct, the employee will not be able to log in to the middle console.

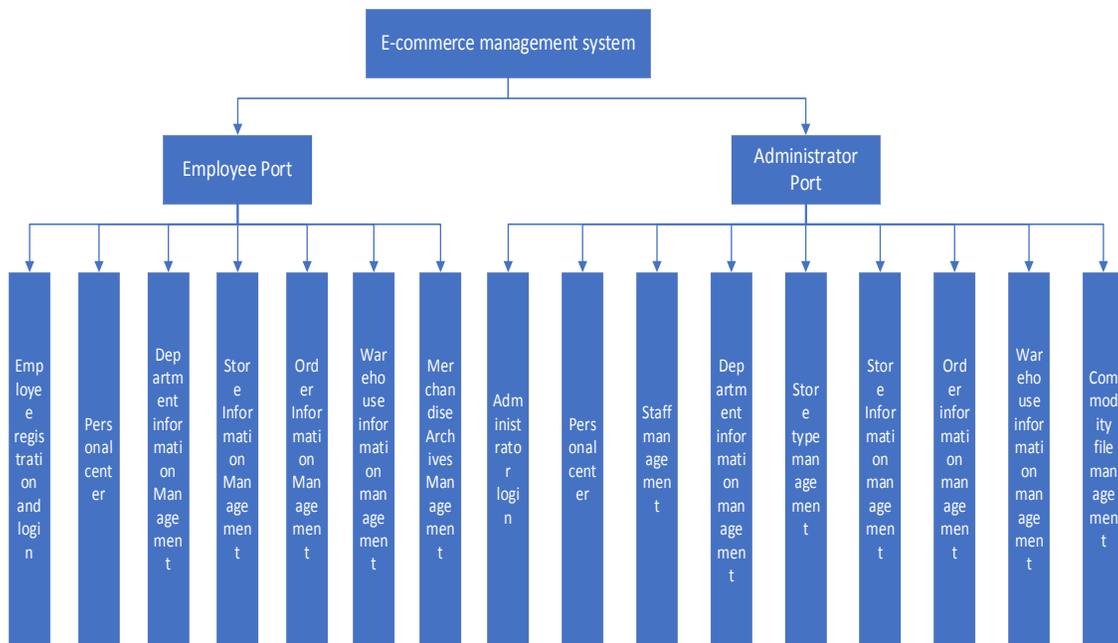


Figure 1. Overall system design structure diagram

The entry of the order information of the e-commerce middle office management system developed in this topic is that the employee first logs in to the e-commerce middle office management system, verifies that the order-related information is edited and entered into the edit box by selecting the order information management menu, and the successful submission of the order information cannot be completed without entering the order information into the system. After the employees enter the order information into the system, the administrator can complete the view of the order information entered into the system by all employees, and can also be maintained in the case that the order information such as the order quantity, the order price and other related information is entered incorrectly, and the order information can be cleared or modified from the list. When designing the database of an

e-commerce middle office management system, the entity abstraction of the database is given through the proposed functional requirements. With the continuous and further improvement of the prototype diagram, the database can be partially modified and designed in time. It generally constructs the entities by using some functions, and these entities are generally the data structures corresponding to the functional interface, and the attributes connected with the entities are the data elements attached to these data structures. For the e-commerce middle office management system, it can include the following entities: employee entity, administrator entity, Department entity, warehouse entity and Order entity, store entity, store type entity, commodity file entity, etc. its design is as follows:Its order information management process is shown in Figure 2 below. [6]

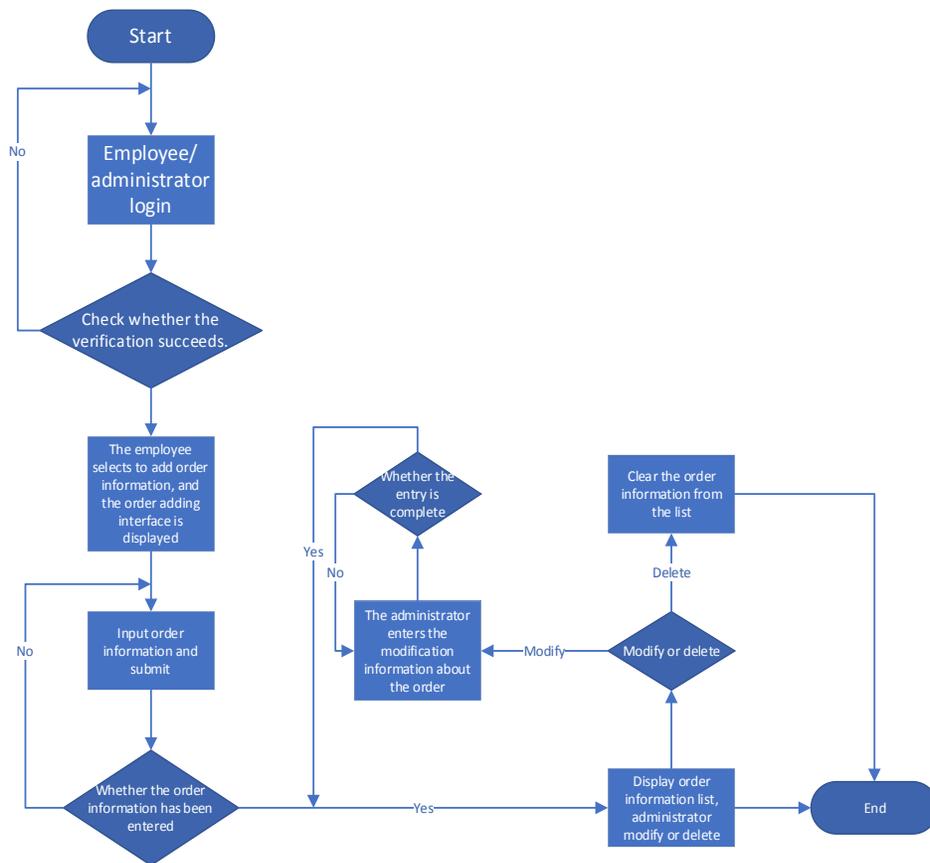


Figure 2. Order information management flowchart

III. SYSTEM IMPLEMENTATION AND TESTING

The registration interface is to enter the employee number, employee name, password, contact number and position into the edit box, any of the above five kinds of information must be entered into the system, otherwise the employee is not allowed to register successfully. The administrator entity is specifically used to provide users with management authority with login verification information when they can manage and maintain a series of permissions such as employee, department information, store type, store information, order information, warehouse information and commodity file information when entering the e-commerce middle office management system. [7] The employee registration interface is shown in Figure 3 below.

The image shows a registration form titled "基于springboot的电商中台管理系统注册". It contains five input fields: "员工号" (Employee ID), "员工姓名" (Employee Name), "密码" (Password), "联系号码" (Contact Number), and "职位" (Position). Below the fields are two buttons: "注册" (Register) and "取消" (Cancel).

Figure 3. Employee registration interface

Once an employee is registered, they can use the login screen to complete the verification, in which they can enter the login information into the edit box, select the role, and only if the login information matches the role can the login be successful. Department entity is an effective way to complete the ownership of the specific

organizational structure of all employees using the system. It is also the most common and most basic organizational structure of an enterprise. Its department entity mainly includes department name, department director, department number, personnel structure and detailed establishment date. The employee login interface is shown in Figure 4 below.

The image shows a login screen titled "基于springboot的电商中台管理系统登录". It features two input fields: "请输入用户名" (Please enter username) and "请输入密码" (Please enter password). To the right is a blue "登录" (Login) button. Below the fields are radio buttons for "角色" (Role), with "管理员" (Administrator) and "员工" (Employee) options. A "注册员工" (Register Employee) button is also visible at the bottom.

Figure 4. Employee login screen

In order to provide employees with the safe use of the e-commerce middle office management system, provides a mechanism to modify the password to complete, here, to ensure that the original password is correctly entered into the system under the premise, and to ensure that the new password of the two consecutive entries are consistent in the case of the password can be successfully modified. Warehouse entity is a kind of address information used to record the goods sold by enterprises or stores for storage. Its attributes include: warehouse number, warehouse name, warehouse location, warehouse picture, warehouse area and stored goods. Its interface for modifying passwords is shown in Figure 5 below.



Figure 5. Modify the password interface

Information such as positions, contact numbers, etc., that may be entered by individual employees at the time of registration may be modified by the

employees themselves. Its interface for modifying personal information is shown in Figure 6 below.



Figure 6. Modifying the personal information interface

Department information is a kind of information that can be released by the administrator through the system and provided to

employees to view, at this time, employees can also quickly query department information and view the details of each department according to

the name of the department and the head of the department. [8] The store type entity is used to display the specific type information of the store where the employees using the system record the

sold goods, whether it comes from JD store, Taobao store or other stores,Its interface is shown in Figure 7 below.

基于springboot的电商中台管理系统

首页 (♥) (👤) (♥) 部门信息

部门名称 部门名称 部门主管 部门主管

索引	部门名称	部门主管	部门人数	人员构架	成立日期	操作
<input type="checkbox"/> 1	部门名称1	部门主管1	1	人员构架1	2021-12-23	<input type="button" value="详情"/>
<input type="checkbox"/> 2	部门名称2	部门主管2	2	人员构架2	2021-12-23	<input type="button" value="详情"/>
<input type="checkbox"/> 3	部门名称3	部门主管3	3	人员构架3	2021-12-23	<input type="button" value="详情"/>
<input type="checkbox"/> 4	部门名称4	部门主管4	4	人员构架4	2021-12-23	<input type="button" value="详情"/>
<input type="checkbox"/> 5	部门名称5	部门主管5	5	人员构架5	2021-12-23	<input type="button" value="详情"/>
<input type="checkbox"/> 6	部门名称6	部门主管6	6	人员构架6	2021-12-23	<input type="button" value="详情"/>

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Figure 7. Departmental information management interface

Employees can view all the store information released by the administrator according to the actual store situation, in addition, employees can also view a certain store or a certain type of store by store name, store type, etc., and can also view the details of a store. The store entity is the entity information that can be used to sell goods through the e-commerce platform, and can also be used to provide services and order distribution for the sold goods, including the detailed number of the store, the name of the store, the type of the store, the exquisite photos of the store, the opening time of the store and the detailed business scope, The order is generated by the name of the store, the

price of the order, the employee's contact number, and the order data recorded by the user, including the name of the store, the order number, and the order number of the order, The commodity file entity is used to record the detailed information of the commodity file provided to the user to purchase and the store can sell to the user, including: commodity name, commodity size, commodity storage location, commodity inventory, monthly commodity sales volume, commodity picture, registration time, employee account number, employee name and employee contact number, The store information list viewing interface is shown in Figure 8 below.

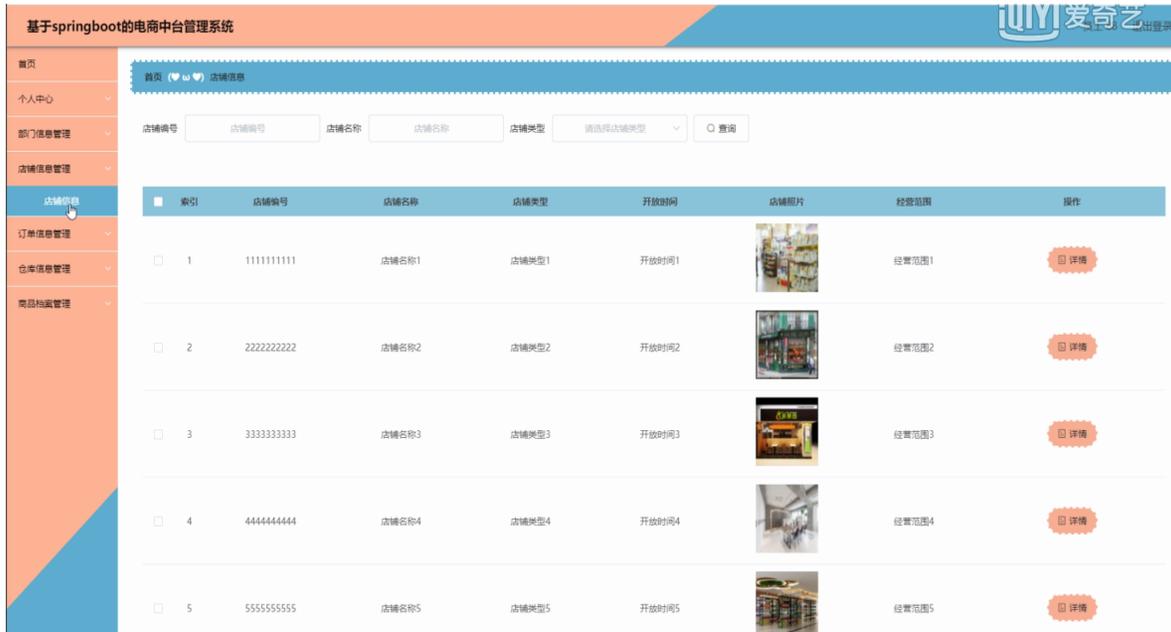


Figure 8. Store information list viewing interface

Order information management

Order information is an employee can be based on the actual order sales situation to enter the system of information, in the order information to add interface, the order quantity must be entered into the system, you can also directly select the

store to complete the automatic appearance of the store data, in the order quantity is not entered into the system can not complete the successful submission of the order. Its order information addition interface is shown in Figure 9 below.



Figure 9. Order Information Addition Interface

After the employee enters the order information into the system according to the actual situation or the administrator maintains the order information according to the actual situation of the order, the order information can be viewed by the employee;

in addition, the employee can also query the way to quickly find the order and view the details of an order. Its order information list interface is shown in Figure 10 below.



Figure 10. Order information list interface

Warehouse information is a kind of information related to the storage location of the goods that can be provided to employees in the system according to the actual storage of goods by the administrator to complete the information related to the storage location of the goods; employees can also query the details of a warehouse according to the name of the warehouse, location, etc. The commodity file entity is used to record the detailed employee entity of the commodity file provided to users to purchase and the store can sell to users. It is used to record users who use the e-commerce middle office management system to view department information, store information and warehouse information. It can also add order information and commodity file information, including employee job number, employee name, employee gender, employee avatar Employee contact number, employee position and other information,

including: commodity name, commodity size, commodity storage location, commodity inventory, monthly commodity sales volume, commodity picture, registration time, employee account number, employee name and employee contact number, etc, The commodity file entity is used to record the detailed employee entity of the commodity file provided to users to purchase and the store can sell to users. It is used to record users who use the e-commerce middle office management system to view department information, store information and warehouse information. It can also add order information and commodity file information, including employee job number, employee name, employee gender, employee avatar Employee contact number, employee position and other information, including: commodity name, commodity size, commodity storage location, commodity inventory,

monthly commodity sales volume, commodity picture, registration time, employee account number, employee name and employee contact number. [9] After the above entities are designed, the data table can be designed according to the

required attributes and the occupied space may be used, Provide necessary conditions for the creation of the actual database. E-commerce database management system Its warehouse information list viewing interface is shown in Figure 11 below.



Figure 11. Repository Information List Viewing Interface

Commodity file is a staff can be based on the ability to sell the product information to complete the entry into the system, where the product name is necessary to enter the system, other product

information can not be entered into the system temporarily, its product file information to add interface as shown in Figure 12 below.

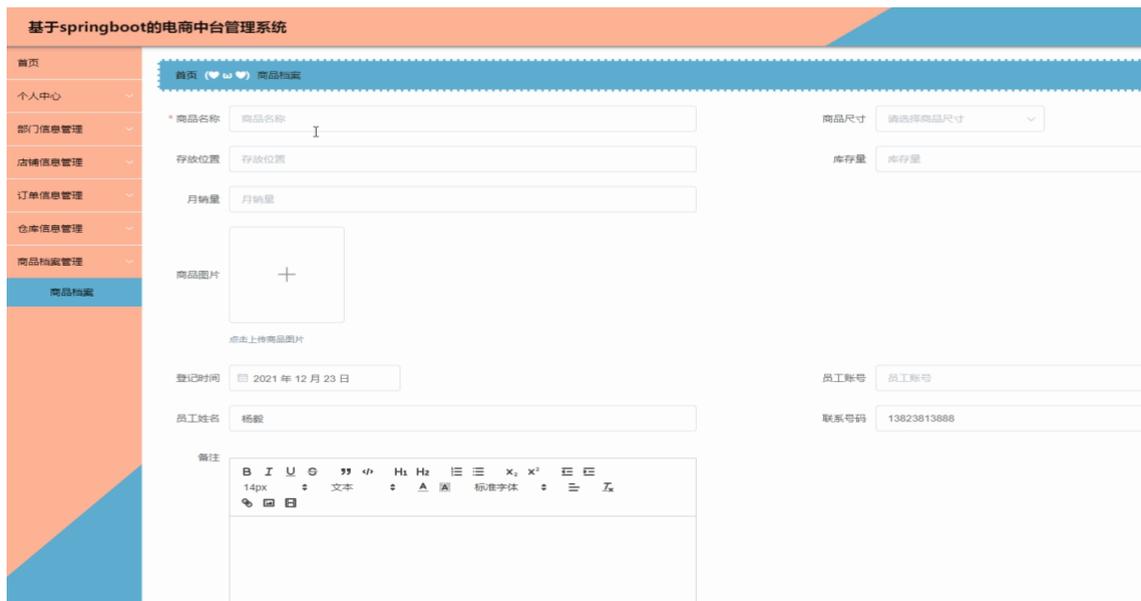


Figure 12. Product file addition interface

After the employee enters the product file information into the system or the administrator maintains the product file information, the employee can view the product file information

list, and can also query and view the details of the product file. Its product file information viewing interface is shown in Figure 13 below.



Figure 13. Product file list viewing interface

Administrators can not only view the employee information of all employees who use the employee terminal of the e-commerce middle office management system to complete the registration, but also give employees a permission according to the actual situation of the employees

and maintain and process them according to the errors in the employee's information such as contact numbers, positions, etc. Its employee management interface is shown in Figure 14 below.

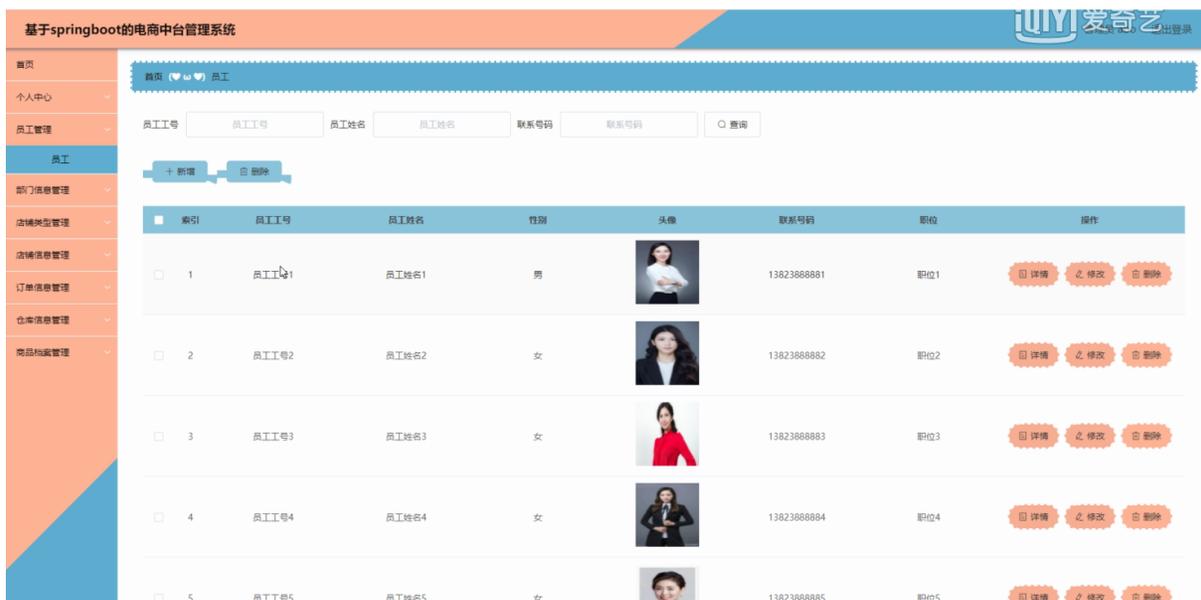


Figure 14. Employee management interface

Department information is based on the actual enterprise organization situation to enter the department name, department number and

department head and other information into the system, and its department information addition interface is shown in Figure 15 below.



Figure 15. Department Information Add Interface

After the administrator has completed the most basic department information for the organizational structure of the enterprise, it can also be maintained in the case of structural

adjustments and changes such as department name and department head. Its department management list interface is shown in Figure 16 below.



Figure 16. Department Management List Interface

Store information is based on the actual situation to the store information such as store name, business scope and other information to enter into the system, and then can be provided to employees to view, as long as the store information is not entered in the case can not publish store information.

After the store information is added to the system by the administrator, it can also be maintained according to the opening hours, business scope, and store photos of the store information. [10]

The administrator can view the list of order information entered into the system by all employees, and can also complete the maintenance of the order in the event that the order information is entered incorrectly, such as the order quantity, the order price, etc. [11]

The administrator can view the product file information entered by all employees into the e-commerce middle office management system; can also maintain the product file information in the case of incorrect entry such as product size, storage location, etc.; of course, can also view the detailed information of each product file. [12]

IV. CONCLUSION

The e-commerce middle office management system developed by this project is a web system for order management, which can be taken by means of collecting materials related to the subject through the library and the Internet, through the analysis and summary of these literature, to complete the analysis and database design of the functions and processes of the e-commerce middle office management system, and finally to use technology to complete the system used by employees and administrators.

The e-commerce middle office management system uses the Vue framework as the design

technology of the front-end interface, and the background end uses the SpringBoot framework to build the system, uses the Java language to write the functional code used by employees and administrators, and stores the relevant data such as orders and commodity files using the MySQL database. The e-commerce middle office management system is a web system that can be used for the information associated with the commodity file and the order, which can be provided to employees and administrators to use, employees can view department information, store information, warehouse information, and can also add and query order information and commodity file information; can be provided to the administrator to manage the department information, store information and warehouse information, etc., and can also be added by the staff the order information and commodity file information to be maintained by the administrator in the case of changes in these information. Thus, it can be provided with a complete set of e-commerce middle office web management system.

REFERENCE

- [1] Shufan Liu, Ximei Li, Peng Sun. Design and Implementation of Communication Base Station Survey System based on SpringBoot [J]. Proceedings of 2018 Academic Conference on intelligent education and artificial intelligence development, 2018:34-36.
- [2] Zhang Shiyang. Development and Implementation of College Students' Ideological and Political Practice Course Network Teaching Platform Based on Jsp Technology [J]. 2019 3rd International Conference on Advancement of the Theory and Practices in Education (ICATPE 2019), 2019:364-369.
- [3] Big Data:Tutorial and guidelines on information and process fusion for analytics algorithms with MapReduce [J]. Sergio Ramírez-Gallego, Alberto Fernández, Salvador García, Min Chen, Francisco Herrera. Information Fusion. 2018:100-103.
- [4] Analysis of user preference and expectation on shared economy platform: An examination of correlation between points of interest on Airbnb [J]. Moloud Abdar, Neil Y. Yen. Computers in Human Behavior. 2018:71-73.

- [5] Liao Bin Analysis of MVC pattern in developing web application based on Java [J] Electronic technology and software engineering, 2020 (21): 49-50.
- [6] Zhangsiqing Design and implementation of e-commerce adoption system for agricultural products based on J2EE [d] Anhui Agricultural University, 2021 (33): 113-115.
- [7] Yang Jin Design and implementation of fresh e-commerce order fulfillment system [d] Beijing Jiaotong University, 2021 (20): 160-161.
- [8] Wang Hao Design and implementation of e-commerce system for retail industry [d] University of Electronic Science and technology, 2021 (19): 37-38.
- [9] Wu Tong Design and implementation of a commodity background management system for a small and medium-sized enterprise [d] University of Electronic Science and technology, 2021 (5): 87-89.
- [10] Zhaoanxiue, hurui town Design and implementation of order management system based on JavaEE [j] Science and technology innovation and application, 2021 (04): 115-117.
- [11] Lian Da, xiexiaoling, liupingping Design of e-commerce management system for rural economy [j] Automation technology and application, 2020 (12): 164-167.
- [12] Songdapeng Development practice of large enterprise electronic mall system [j] China management informatization, 2020 (15): 179-182.