

# Design of warehouse management system based on web

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**ABSTRACT:** This system is based on the web warehouse management system, it basically realizes the warehouse management login, commodity information management, commodity warehousing operation, customer registration and other functions. This product is mainly designed and developed from two parts. Its database design and maintenance this part is designed by ORACLE relational database development tool and Power designer's database modeling tool. The software design of warehouse management system adopts MyEclipse 6.0.1 as the development tool. This product uses JSP technology to make dynamic web pages, JavaScript technology as a web development scripting language, Tomcat for the warehouse management system application server.

This article introduces in detail the system function analysis, system performance analysis, system module function design, system implementation and detection and other main content.

**Key words:** warehouse management system, module analysis, JavaScript technology

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## I. Introduction

Since the rapid development of the global information Internet in the last century, the rapid expansion of Internet technology has slowly begun to become the most important public information infrastructure and facilities to promote global economic development and social civilization and progress. After only ten years of construction and development, the Internet has spread to all regions and countries in the world. The competition among enterprises has become increasingly fierce, warehouse management, as the cornerstone of enterprise development, has also begun to be closely related to the Internet.

In our daily activities are inseparable from the commodity warehouse management system, whether it is the world's top 500 enterprises, or the city's stores, or all kinds of clothing stores shoe stores, hospitals, wholesale stores, warehouse management on their impact is beyond doubt. Enterprise warehouse management for any enterprise is very important, warehouse management affects the circulation of enterprise goods. If an enterprise its warehouse management system is backward, then the enterprise cargo transport chain will be completely chaotic, which will undoubtedly cause a big problem in the enterprise, will directly cause a substantial increase in inventory management costs of the enterprise, the quality of service is difficult to really be effectively guaranteed, thus directly affecting the core competitiveness of related production enterprises. The traditional simple, static commodity warehousing and inventory management has become unable to effectively ensure the efficient and reasonable use of various inventory resources in production enterprises. With the continuous progress of The Times, the current warehouse management requirements are getting higher and higher, the current management must be accurate, safe, efficient and so on. The past manual warehouse management has not reached the current requirements, it cannot do the information accurate, safe, efficient and so on. And the modern warehouse management system is more economical than the manual warehouse management. In the information age, we should continue to innovate, be the leader of the world economy, and be a leading enterprise. If you want to continue to develop and survive, without modern management methods and methods, it is absolutely impossible for enterprises to go long-term in today's world. Information comprehensive, management automation is the key point of whether the warehouse management system is strong. Because of this, in order to adapt to the current situation, in order to improve the efficiency of the enterprise. We have the idea of designing the warehouse management system.

## II. Develop tools and techniques

### 2.1 Development Tools

#### 2.1.1 Eclipse

Eclipse was originally developed by IBM as an IDE development environment. It is now known as a free integrated development environment, developed in the Java language. Eclipse has some advantages that no other IDE software has:

- (1) very suitable for Java language, development, writing, error checking, compilation, help and other aspects are very convenient.
- (2) There is a Chinese version, for beginners can quickly get started.
- (3) Eclipse software update speed block, fix problems, optimize user experience.
- (4) Eclipse can support many plug-ins. It is simply used as a platform, and those different plug-ins can bring different functions to it, so that it has more and more comprehensive features.
- (5) Eclipse's code is completely open source and free.
- (6) It supports a variety of computer languages.

### 2.1.2 Oracle

Oracle is Oracle Software Systems Co., LTD. (Oracle), one of the world's top 500 companies, mainly develops enterprise-level software. Oracle Software Systems has a very high position in the world software field, its influence is the same as the American International Business Machines Corporation IBM, and its competitiveness is no less than Microsoft. Oracle software Systems Co., LTD. (Oracle) in the world's influence is very large, more than 90% of the world's top 100 companies are using Oracle software systems Co., LTD. (Oracle) products, especially Oracle technology. In addition, Oracle is also a top software product developer in the field of software, and is one of the world's largest software giants. Oracle is the world's first Internet company with a complete line of software applications. It is mainly engaged in database research and development, business application software and application software development, and the invention of decision development tools. The company's main products are servers and tools, mainly can realize the dynamic web technology of the application server, through the local area network operation of the database server. Oracle was invented by Oracle Corporation and entered China in the 1980s. Oracle database is the most advanced database system at present, with huge advantages in security and confidentiality management, architecture, functionality and ease of use. At present, Oracle database has experienced Oracle7, Oracle8, Oracle8i, Oracle9i update development.

### 2.1.3 Power Designer

Power Designer is favored by many developers as a development tool for building database models. As a database developer, there is no doubt that they have mastered this data modeling tool. It can build object-oriented model, business process model, conceptual data model, physical data model and so on. Using this tool to complete the database design, its model understanding is simpler, fully play the database technology, make the database design more reasonable. Power Designer is a good case tool, the project management is convenient, so that designers have a common platform for communication. Power Designer can also be used in conjunction with other software, especially several popular data modeling software, PowerBuilder, Delphi, VB are now excellent development tools. The combination with this software can greatly reduce the design time and unnecessary manpower and material resources and improve the system design.

## 2.2 Related Technologies

### 2.2.1 JSP technology

JSP technology is a kind of dynamic web development technology. It is led by Sun Microsystems company to create, on the basis of Servlet, its essence can be regarded as a servlet. In the web design need to design dynamic web content, at this time need to use JSP technology. The traditional method of using servlet will appear a large number of output statements, resulting in a lot of code, the program is very complex, difficult to maintain. To overcome these problems, Sun Microsystems created JSP technology.

JSP technology features:

#### (1) Cross-platform

The characteristics of JSP technology is through the Java language to achieve, it has the characteristics of cross-platform, can be applied in Windows, Linux, Mac different systems.

#### (2) Pre-compilation

In fact, pre-compilation is to do a good job in advance of the compilation process, when the user goes to browse the relevant interface for the first time, the system will compile the relevant code, the code of the jsp page will be automatically recorded by the server. When the customer visits the second time will be directly compiled and stored good JSP page code. This can reduce the pressure on the server CPU, improve the access speed, and improve the user experience.

#### (3) Business code separation

In dynamic web design, how to separate the development of the interface and the development of the application program, often need to use JSP technology. In the development of dynamic web projects, the content of static web pages is compiled by using HTML language, and the content of dynamic web pages is often designed with JSP technology. Usually use servlet, struts, spring and other business control layer to deal with business code, so

as to realize the separation of business-related layer and view related layer, to achieve the goal of business code separation. In this way, the work of rendering data is undertaken by JSP, so the JSP page code will not change because of the change of the business code.

#### (4) Component reuse

Business components in JSP pages can often be edited through JavaBean's. This means that using a JavaBean class to encapsulate the business management code can also be regarded as a data storage model, and developers can use this JavaBean repeatedly to reuse components, whether it is a Java server page or other interfaces of the project. Of course, the above reuse components can also be used in other related applications.

#### (5) Inherit Java Servlet functionality

JSP can be thought of as a simplified Servlet, in other words, it has all the functionality of a Servlet.

### 2.2.2 JavaScript technology

JavaScript is a scripting language used in web production and is also used as a programming language in other environments. JavaScript is easy to learn, very convenient, and popular with the public.

The differences between JavaScript and Java are:

There's a big difference between the two. They're products made by different companies. In 1995 Netscape launched the JavaScript language as a result of social research. Sun Microsystems introduced Java, which had a huge impact on the world. When it comes to Internet application research, Java has a unique advantage as an object-oriented programming language. JavaScript, on the other hand, is a programming language that can be executed without compilation.

(1) Object Oriented: Java is a true object-oriented language that requires design objects. JavaScript does not need to be object oriented.

(2) Interpretation and compilation: Java must be compiled before the source code can be executed. JavaScript does not need to be compiled to execute operations directly.

(3) Strong and weak type variables: Java uses strong type variable check, that is, all variables must be declared before compilation. JavaScript variables are weakly typed, so that they do not have to be declared before they are used, and their data types can be identified by JavaScript related operations at run time.

### 2.2.3 Tomcat

Tomcat is a lightweight server. Its main function is to be used as a necessary configuration environment for some systems. It is a free and open-source server. Tomcat was developed by James Duncan Davidson of Apache, Sun and other companies. The reason why Tomcat is popular among many developers is mainly due to its high technical level, easy for developers to use, free and open-source features. It has been recognized by the public and has become a very commonly used Web application server.

Tomcat is different from Apache:

Tomcat has many advantages by many people in the industry, it can do not consume system resources, has excellent scalability, but also has some necessary system functions including load balancing, mail service development and so on. It is with these highlights; it is widely favored by related development enterprises. Tomcat, like Apache, has long been a mainstream Web server.

However, in actual use, Apache and Tomcat focus on different:

Apache is a Web Server, focusing on HTTP Server, there are many limitations, it cannot play a good role in ASP, PHP, JSP and other dynamic web pages, only can play a role in Html static web pages.

Tomcat is an application (Java) server, can be considered to be an extension of Apache, but it can run independently of Apache, support JSP and Servlet.

Apache can connect to Tomcat in one direction and access Tomcat resources, and vice versa, but they can be integrated on a single server.

## **III. Requirement Analysis**

### **3.1 System function requirement analysis**

The warehouse management system needs to be analyzed; the system needs to achieve the following functions:

(1) User login function: warehouse management system account login in order to protect the user's personal information, enterprise information. Therefore, it is necessary to do a good job of user login verification function, the user enters the account password in turn, the system detects the information entered by the user, if the input is correct, you can enter the system home page. If the input is wrong, the system will report an error prompt.

(2) Warehouse manager management function: the warehouse manager can manage the warehouse user information. Query and modify the information of all users in the warehouse. You can query and modify the user's contact information, email, contact address, etc. You can also add and delete users.

(3) User query function: This function is that customers can log in to the account and query personal

information.

(4) Warehouse storage query function: query the commodity storage information of the warehouse. Warehouse managers and customers can query the storage of goods, goods out of the warehouse, goods into the warehouse, etc.

(5) User information management: Users can manage their own information.

### **3.2 Analysis of system performance requirements**

The warehouse management system demand analysis, for this system to achieve the following requirements:

(1) scale requirements, the system to achieve a large scale, can support the use of small and medium-sized enterprises.

(2) In terms of response speed, the data access speed is fast, and the response time of access is basically no longer than 8 seconds, which can achieve timely information query and other operations.

(3) In terms of operation requirements, the operation requirements are low and easy to learn. Administrator users can quickly master.

(4) The number of visitors can reach no less than 400 people at the same time.

(5) In terms of data security and accuracy, it can ensure that the information of administrators, users and commodities is safe and stable, and ensure the accuracy of data information.

### **3.3 Operating environment of the system**

Hardware environment:

(1) Processor: Intel Xeon 5120 or above

(2) Memory: 512MB or above

(3) Hard disk capacity: 2G

(4) Video card: HD 5750 video card

Software environment:

Operating system version: Windows XP /2000/vista/Win7

Developer tool: MyEclipse 6.0.1

Background server: Apache Tomcat 6.0

Database: Oracle Database,

Development language: Java

## **IV. System Design**

The warehouse management system is a relatively simple system, like most other warehouse management systems. But compared with other warehouse systems, we focus on the security, scalability, effectiveness and other aspects of the warehouse information. Mainly from the administrator and customer two aspects of design and development. The function of the system mainly includes the commodity inventory inquiry of the administrator identity, commodity warehousing, warehousing, personal information management, user information management, system exit. Customers can register and log in to become a member, personal information management, inventory information query, goods in and out of the warehouse operation, as well as the system's exit and other functions.

### **4.1 System structure and module design analysis**

According to the results of the overall analysis of the system, the functional structure diagram of the system is obtained. Figure 4-1.

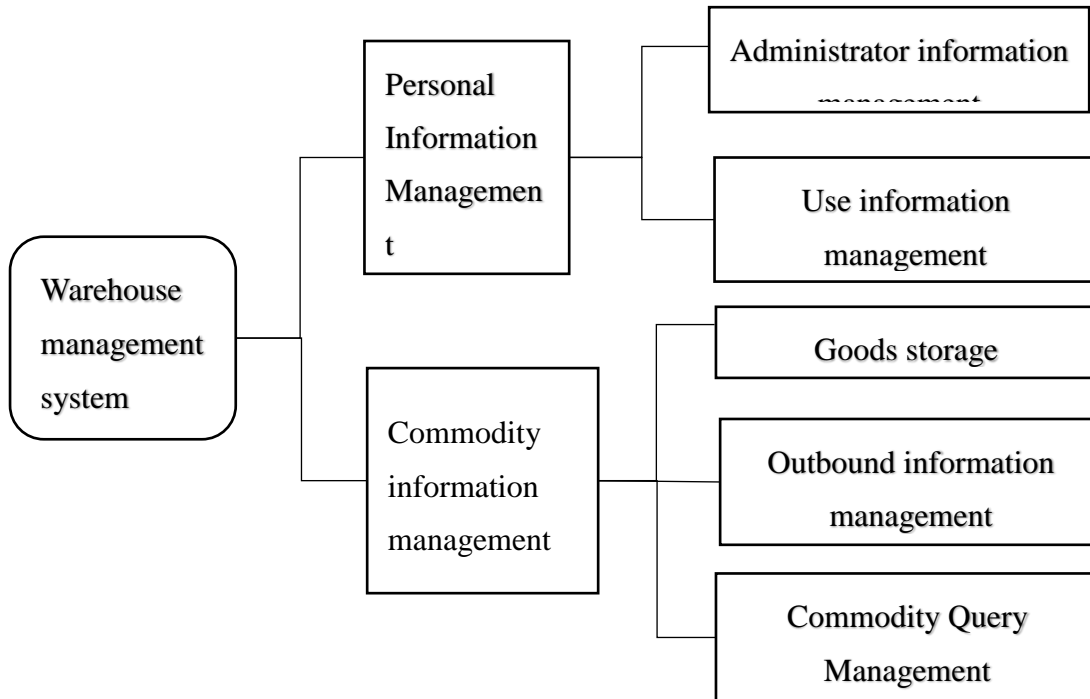


Figure 4-1 Functional structure of the system

#### 4.2 Design and analysis of user login module

In order to ensure the security and confidentiality of the enterprise, its warehouse management system can only be used by users and administrators who have accounts. Design the login system to verify the user information can be better managed to ensure the normal operation of the enterprise. The implementation of the login system is relatively easy. First, the registered administrator or user of the enterprise enters his or her account number and password according to the normal procedure. The warehouse system will receive the information entered by the user, and the system will upload the received account and password information to the relevant server. The server will process the information entered by the user separately through a series of operations and compare it with the information entered in the database. If the input information is consistent with the database information, login will successfully enter the management system home page. If the information is inconsistent, the server gives feedback and the page goes to the error reporting interface.

#### 4.3 Product warehousing module design and analysis

Warehousing operation process:

The warehousing of goods needs to check the goods and apply for warehousing, and must be reviewed by the administrator. After the review, the goods can be put into the warehouse. When the goods do not conform to the application form, the administrator can refuse the goods into the warehouse. Only when the quantity of goods is appropriate, can the warehousing operation be carried out. It is required to evaluate and forecast the warehouse capacity. When there are too many goods in the warehouse or the warehouse is too full, the administrator must implement the operation of refusing to enter the warehouse to prevent the warehouse from being too full and affecting the warehouse transportation efficiency. When the quantity of goods in the warehouse is reduced to a certain extent, then consider whether to implement the warehousing operation. When the goods are finished warehousing operation, the warehouse keeper should first confirm with the delivery personnel after the goods are stored in the warehouse, the warehouse manager needs to issue a cargo warehousing order to the delivery personnel, and the contents of the warehousing order should be rigorous and detailed. The above is the basic warehousing process.

#### 4.4 Design and analysis of commodity delivery module

Operation process of warehouse delivery:

Similarly, the same as the warehousing operation, when carrying out the warehousing operation, the warehousing personnel should also present the relevant warehousing application form and the list of warehousing goods. The warehouse manager will review the application for warehousing, and if the application is not successfully reviewed, it will not be released. When the review is passed, the warehouse keeper should compare the goods and goods on the application form with the goods stored in the warehouse to obtain the

relevant information and inventory of the goods. When the inventory is sufficient, it can be directly carried out the warehouse operation. On the contrary, the quantity of goods out of the warehouse is too large, higher than the storage capacity of the warehouse, it will refuse to go out. Goods out of the warehouse to strictly do a good job of statistics, do a good job of related goods out of the warehouse details, warehousing details, inventory change details, then the warehouse administrator to the applicant to open the warehouse documents, warehouse management system out of the warehouse process is complete.

#### 4.5 Design and analysis of user registration module

The warehouse management system must have user registration, and the registration should also be comprehensive, simple and fast. The realization of the registration system is relatively difficult, and its process can be summarized as follows:

In order to ensure the authenticity of registered users, the registration box on the right side of the page will automatically display a distributed registration box containing user registration nickname, user registration account and password, user registration name, gender registration age, phone number, mailbox, user email address and other important registration information. After registration, the user needs to enter and fill in the registration page of the user registration login information in turn. Each time the user registration information is entered, the system server will automatically upload the entered user registration information to the system server side, and the server client will process the user information in turn. When the user information is not filled in, the system will prompt the information to inform the user of the information not filled in. When registering an email address or phone number, if you enter an error in the registration field, the system will prompt you to correct it. Only when the relevant information fully meets the requirements, can be successfully registered, can be successfully logged in to the warehouse management system. When the input error information is too much, the user can choose to clear the information and re-register.

### V. Database Design

#### 5.1 Creating a Database

The database management system used in this system is ORACLE relational database. ORACLE database is the mainstream database development tool at present, it has the advantages of supporting a variety of data classes, can run on a variety of platforms, and high security. This management system uses E-R model to study this kind of data model. As shown in Figure 5-1.

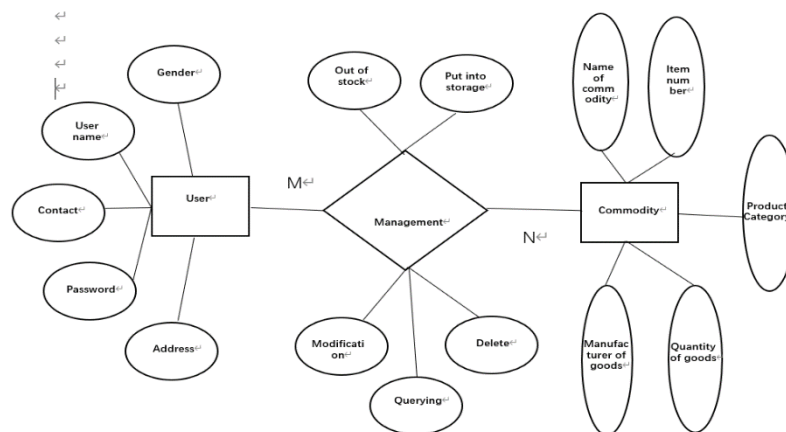


Figure 5-1 System E-R diagram

According to the analysis of each function module of the warehouse management system, the following data structure tables are created.

The results of administrator information are shown in Table 5.1. In the table, id is the administrator number, account is the administrator account, password is the password, name is the name, sex is the gender, age is the age, phone is the contact information, email is the email, address is the address.

Table 5.1 Administrator information table

Column names	Data type	Can be null	Instructions
id	number	NOT NULL	Administrator number
account	varchar	NOT NULL	Account number
Password	varchar	NOT NULL	Password

name	varchar	NOT NULL	Name
sex	varchar	NOT NULL	Gender
age	varchar	NOT NULL	Age
phone	varchar	NOT NULL	Contact information
email	varchar	NOT NULL	Email
address	varchar	NOT NULL	Address

Customer information results are shown in Table 5.1. In the table, id is the customer number, account is the account number, password is the password, name is the name, sex is the gender, age is the age, phone is the contact information, email is the email, address is the contact address, etc

**Table 5.2 Customer information table**

Column name	Data type	Can be null	Instructions
id	number	NOT NULL	Customer number
account	varchar	NOT NULL	Account number
password	varchar	NOT NULL	Password
name	varchar	NOT NULL	Name
sex	varchar	NOT NULL	Gender
age	varchar	NOT NULL	Age
phone	varchar	NOT NULL	Contact information
email	varchar	NOT NULL	Email
address	varchar	NOT NULL	Contact address

Product information results are shown in Table 5.1. In the table, id is the inventory number, name is the commodity name, goodsid is the commodity number, price is the commodity price, sort is the commodity classification, num is the quantity of the commodity and address is the manufacturer.

**Table 5.3 Commodity information table**

Column Names	Data type	Can be null	Instructions
id	number	NOT NULL	Stock number
name	Varchar	NOT NULL	Commodity name
goodsid	varchar	NOT NULL	Item number
price	varchar	NOT NULL	Commodity prices
sort	varchar	NOT NULL	Category of goods
num	varchar	NOT NULL	Quantity of goods
address	varchar	NOT NULL	Manufacturer

## 5.2 Connection to the database

The connection between the database and the system uses the My Batis persistence layer framework. The administrator information in the database can be added, modified and deleted.

## VI. System implementation

### 6.1 Implementation of login interface

Compared with other management systems, the login interface is more concise. When the warehouse administrator enters the system, he needs to enter the administrator account and password in the interface. When the password is correct, he can enter the home page of the management system. When the user logs in, his personal account and password exist in the list of already owned user information. The user's personal information needs to be entered by the administrator in advance, or it can be registered through the registration page. It is connected with the database first to facilitate the extraction of user information in the database. In this system, there are two login module entrance. The following picture shows the interface for the administrator to log in and enter the account password, as shown in Figure 6-1.

**Admin Login**

Username:

Password:

**Figure 6-1 Administrator login page**

**6.2 Implementation of the storage function**

There are two main kinds of warehousing of goods. One is the entry of new goods for the first time. The other is to record the goods that have been recorded.

In the first case, when entering a new commodity, because the information of this commodity does not exist in the warehouse, it is necessary to fill in the name of the new commodity entered, select the option of "Input new commodity", the other information of the commodity must be entered, and its information will be saved to the information list of the warehouse commodity. The following figure is the input of new goods, as shown in Figure 6-2.

**Please enter the product information you want to add!**

**New products added**

[Name of commodity]:

[Item number]:

[Manufacturers]:

[Price of goods]:

[Product Category]:

[Quantity of goods]:

**Figure 6-2 Add new item module**

In the second case, when entering an existing commodity, because the information of this commodity exists in the warehouse, you can directly choose to enter the commodity, and truthfully fill in the quantity and number of the commodity according to the input data of the commodity. This can facilitate the query of relevant commodity information. This way is convenient for the administrator to grasp the situation of the corresponding goods.

The following figure is the module of adding existing products, as shown in Figure 6-3.

**The commodity information inventory is as follows!**

Stock number	Name of commodity	Quantity of goods	Item number	Manufacturers	Product Category	Price of goods	Out of stock
0	pencil	24	223421	2B	School supplies	2	Out of stock
1	pen	25	2233	2B	School supplies	2	Out of stock
2	iPhone7	101	1	pingguo	Mobile phone	4445	Out of stock
3	iPhone6	90	2	pingguo	Mobile phone	4445	Out of stock
4	huawei	103	5	shenzhen	Mobile phone	2999	Out of stock
5	huitai242G1	22	334	huitai	electron	3222	Out of stock
6	xiaomi2S	100	1021	xiaomi	Mobile phone	2000	Out of stock
7	oppo	100	321	bubugao	Mobile phone	2300	Out of stock
8	vivo	100	4321	bubugao	Mobile phone	2300	Out of stock

[Click Add New product](#)

**Figure 6-3 Add an existing product picture**

**6.3 The export function is implemented**

I think the outbound module is one of the better places in the design. There are several issues to be considered in outbound management. First, the quantity of goods out of the warehouse is higher than the storage capacity out of the warehouse. Second, the amount of goods that need to go out of the warehouse is zero. In both



cases, the management system will prompt the warehouse operation error, not out of the warehouse. Only when the goods are not higher than the storage capacity of the warehouse, the system will give the goods out of the warehouse. This can greatly reduce the occurrence of outgoing information errors and improve the efficiency of the company. Figure 6-4 shows the warehouse outbound management interface.

The commodity information inventory is as follows!							
Stock number	Name of commodity	Quantity of goods	Item number	Manufacturers	Product Category	Price of goods	Out of stock
0	pencil	24	223421	2B	School supplies	2	Out of stock
1	pen	25	2233	2B	School supplies	2	Out of stock
2	iPhone7	101	1	pingguo	Mobile phone	4445	Out of stock
3	iPhone6	90	2	pingguo	Mobile phone	4445	Out of stock
4	huawei	103	5	shenzhen	Mobile phone	2999	Out of stock
5	huitai242G1	22	334	huitai	electron	3222	Out of stock
6	xiaomi2S	100	1021	xiaomi	Mobile phone	2000	Out of stock
7	oppo	100	321	bubugao	Mobile phone	2300	Out of stock
8	vivo	100	4321	bubugao	Mobile phone	2300	Out of stock

Figure 6-4 Picture of the warehouse outbound management module

### 6.4 Implementation of the registration interface

Users can enter the registration interface for information registration, in the registration information interface to the user nickname, user registration password, user name, gender and age, telephone number, email, user address and other important information to fill in. The information filled in will be compared with the database in turn. When the information entered is a registered user, the system will prompt that the registered nickname has been occupied, need to fill in a new valid information. When the registered email address, phone number, if the information is wrong or does not match, the system will also make relevant prompts to ensure that the registration information is filled in smoothly. If you enter too many wrong information, the user can choose to clear the information and re-register. The warehouse registration module interface is shown in Figure 6-5.

New user registration

User name:

Password:

Confirm Password:

Name:

Gender:  male  female\*

Age:

Contact Information:

Emile:

Contact Address:

Figure 6-5 User registration system

### 6.5 Implementation of personal information management interface


When the administrator or user successfully logs in to the main page of the warehouse management, the administrator and user can enter the information management interface. The administrator and user can execute the relevant information processing. Administrators and users can modify personal information and other operations. For example, you can change your phone number, email address, contact address, and other relevant personal information. In addition, administrators and users can manage other users' information. Can enter the information management system to view personal information, and can also modify related information. This is a good way to deal with the problem of complex information and improve the efficiency of the enterprise. The information management interface is very clean, simple and convenient, which is also one of the highlights of the design.

The following is the administrator information management diagram, as shown in Figure 6-6.

Customer information is as follows:									
Customer number	User name	Password	Name	Gender	Age	Cell	Email	Contact Address	Information modification
0	guojiufei	940308	guojiufei	male	23	18734745789	<a href="mailto:452507173@qq.com">452507173@qq.com</a>	beijing	Modification
1	guojiufei	123456	guojiufei	male	21	18734745789	<a href="mailto:guojiunfei2@qq.com">guojiunfei2@qq.com</a>	beijing	Modification
2	luyi	0	luyi	female	23	13456738754	<a href="mailto:42344216@qq.com">42344216@qq.com</a>	beijing	Modification

Figure 6-6 Administrator information

Administrators have a lot of power in information management. This is to ensure the accuracy and timeliness of information. Therefore, the administrator can manage the information of all users. When the customer of the company needs, the administrator can immediately enter the system, modify the customer's personal information, and quickly correct the information. The updated user needs to log out of the system again, so as to ensure that the information is fully updated, and can also find the updated information on the interface. Figure 6-7 shows the administrator's management of customer information.



The screenshot shows a web interface titled "Admin Information Page". At the top, there are links for "Return to Home Page" and "Welcome to visit". Below this is a section for "Administrator Information" with the following fields: User name (guojiufei), Password (000000), Name (guojiufei), Gender (male), Age (25), Contact Information (18734745789), Email (guojiufei@qq.com), and Contact Address (beijin). At the bottom of the form are "Modification" and "Clear" buttons.

Figure 6-7 The administrator manages customer information

## VII. System Test

No matter which product is designed, it will have more or less all kinds of bugs and problems. So the warehouse management system developed to test processing. The test is to find the errors in the system. To find errors in the program early, to find problems and shortcomings in the design and to find out why. Early correction, to avoid unnecessary economic losses due to errors, but also can reduce the future maintenance costs.

### 7.1 Test Methods

In order to detect the possible errors in the warehouse management system, I used the dynamic analysis method of black box test. I mainly check whether there are several errors in the system.<sup>[1]</sup> Whether there will be some function failure that is not reflected<sup>[2]</sup> whether various information can be received smoothly<sup>[3]</sup> whether the predetermined goal is reached<sup>[4]</sup> whether the interface is clean and simple.

### 7.2 Test Results

In the login interface, when the correct and valid information is entered, the login interface can successfully log in to the main interface of the warehouse management system. If the input is incorrect and invalid information, the interface will jump to another display interface to report an error. As shown in Figure 7-1.

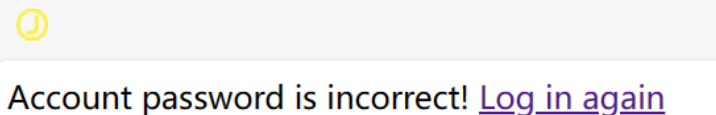


Figure 7-1 Login error message displayed

On the outgoing interface, if the quantity of the outgoing goods is reasonable, the outgoing goods can be smoothly executed and the information of the outgoing goods will be updated accordingly. However, when the number of goods out of the warehouse is greater than the storage capacity of the warehouse, the system will report an error, indicating the error information prompt.

## VIII. Conclusion

With the Internet becoming mature step by step since the 21st century, computer technology is growing at an inestimable speed. The Internet has brought the world into a new era of big data, which has brought about great changes to the world economy. However, if enterprises want to stand in this big era, warehouse management system has become the cornerstone of the success of major enterprises, so enterprises in order to maintain their competitiveness in the fierce competition of the Internet era, must choose excellent warehouse management system. The development prospect of this project is huge.

In this design, through the use of these Eclipse, Oracle, Power Designer free open-source development tools to design a warehouse management system based on web development.

This paper introduces the requirement analysis of designing warehouse management system. The system

function demand analysis, including user login function, warehouse management function, user query function, warehouse storage query function, user information management and so on. The performance demand analysis of the system, from the scale, response speed, operation requirements, number of visitors, data security and other aspects of analysis.

Use the knowledge of software engineering to analyze the process of warehouse management system. The warehouse management system of the user login module, commodity entry module, commodity out of the warehouse sub-module, user registration sub-module and other modules are reasonable analysis. The warehouse management system to complete the warehousing, warehousing operation process and details, login and registration of user information related operations.

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