

# Java - based Dream Cloud ERP System - Inventory Management Subsystem Design and Implementation

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## Abstract

With the continuous development of economy, large and medium-sized enterprises of heavy production tasks, more and more high to the requirement of inventory management. The traditional manual management will cause low efficiency of goods supply. The problems such as material management and data collection have become increasingly unable to meet the requirements of enterprise inventory management. The traditional inventory after making the decision need human convey, but the inventory management system as new way of management, inventory management system can provide managers with a convenient platform directly communicate need to complete the operation, task allocation directly down, people can be faster to implement.

*Keywords:* ERP, B/S, Management system, Autonomous

## 1. Introduction

Enterprise inventory management<sup>1</sup> is very complex and cumbersome. Due to the large variety of materials, different ordering, management and distribution channels, different management systems and various statistical reports among enterprises, a set of inventory management information system must be prepared for warehouse inventory management to realize computerized operation.

According to the current enterprise management system, the general inventory management system is always divided into several departments according to the mastered material categories, which are respectively responsible for planning, ordering, write off, delegated collection, acceptance and warehousing of materials.

At the same time, these departments will send materials and equipment according to the needs of each department of the enterprise, and make inventory and bookkeeping at any time. According to the needs of enterprise leaders and their own management, carry out quarterly and annual statistical analysis, and generate corresponding reports at the same time.

Through careful investigation of these situations, the following warehouse inventory management system is developed.

## 2. Operating Environment

The system is modeled on the structure of layui. The front end adopts bootstrap framework and the back end adopts SSM framework to realize the function of front and back end. In addition, it also applies other related technologies, such as Baidu echarts diagram. At the same time, a good configuration environment is also required. Configuration environment is shown in Table 1.

Table 1. configuration environment server

Server name	Server
Operating system name	Window10
Back end server name	Tomcat
Back end server model	Apache Tomcat/9.0.12

The database server is shown in Table 2, and other softwares are shown in Table 3.

Table 2. configuration environment server

Database server type	Server
Database name	MySQL
Database version	Mysql/8.0.15

Table 3. configuration environment server

Other software type	Server
Development platform	Myeclipse2015
Software name	Myeclipse
Software version number	Myeclipse5.0

### 3. Software Design

The importance of software architecture <sup>2</sup> is that it determines the main structure, macro characteristics, basic functions and characteristics of a system. For example, the key to the success of large-scale building design lies in the main structure, and the success of complex software design lies in the correctness and rationality of structural design at the macro level. Therefore, software architecture is the key to the success of the whole software design.

#### 3.1. System structure design

System structure design is to disperse the structure of the whole system into four parts.

(1) The administrator can input the quantity and price of items in the initial inventory.

(2) The administrator can perform business logic operations such as transfer, disassembly and counting.

(3) The administrator can view the issue / receipt documents and generate and print the documents corresponding to the above operations.

(4) Administrators can view inventory history and print out.

#### 3.2. Architecture design

The system adopts the system design style of browsing / server. The presentation layer is responsible for user input and output to customers. The function layer is responsible for establishing the connection to the database, generating SQL statements to access the database according to the user's request and returning the

results to the client. The data layer is responsible for the actual database storage and retrieval and responding to the data processing request of the function layer, And return the result to the function layer.

Overall architecture design is shown in Fig.1.

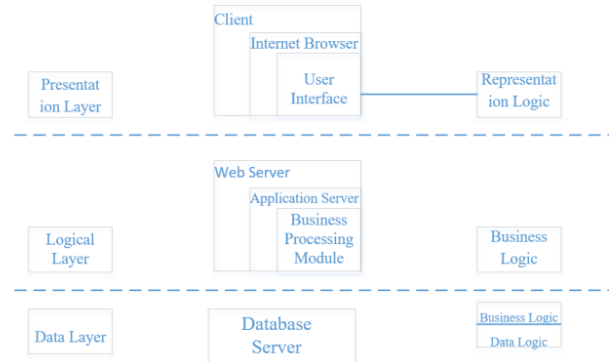


Fig.1. overall architecture design

#### 3.3. System structure design

In the design, the system structure design is particularly important. The system is mainly designed for the administrator. It is divided into 9 modules: setting module, transfer document module, disassembly document module, count document module, miscellaneous issue document module, miscellaneous receipt document module, cost adjustment document module, inventory history module and statistical analysis module. The users in this program are inventory managers, which has nothing to do with customers. System structure design is shown in Fig.2.

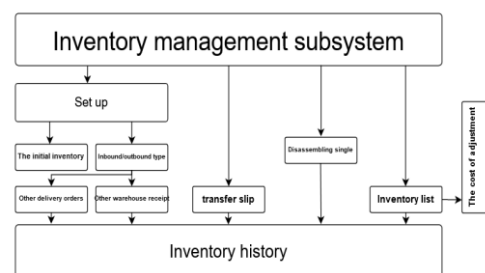


Fig.2. system structure design

### 4. Project Testing and Statistic

The purpose of the test is to find out the possible problems in the system before the system goes online, check the system performance <sup>3,4</sup>, and test whether the

network request can be sent normally, whether the function can be realized stably and whether the operation is stable under the condition of cross domain. The project test is shown in Table 4.

Table 4. Project test

Test unit	Function description	test result
Issue / receipt category	New, modify, delete issue / receipt type	success
opening inventory	Manually enter (add), view and output (document) inventory goods	success
Transfer order	Add, modify, delete, query and output transfer documents	success
Disassembly order	Add, modify, delete, query and output transfer documents	success
Inventory sheet	Add, modify, delete, query and output transfer documents	success
Miscellaneous issue doc	Query and output issue doc	success
Miscellaneous receipt doc	Query and output issue doc	success
	Transfer doc operation generation record	success
Inventory history	Disassembly order operation generation record	success
	Count sheet operation generation record	success

Statistical analysis is the image display of the data to be displayed, so as to more intuitively feel the changes in inventory. Different graph edges have corresponding display data to help managers better manage and make judgments. The statistical analysis is shown in Fig.3.

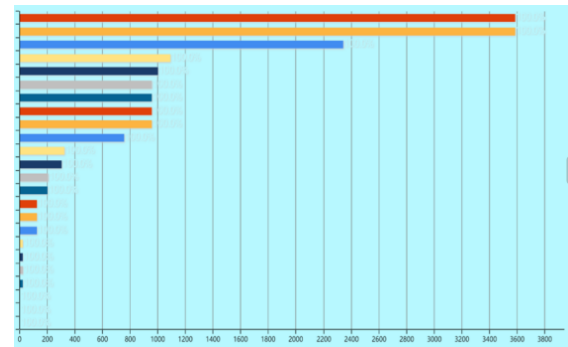
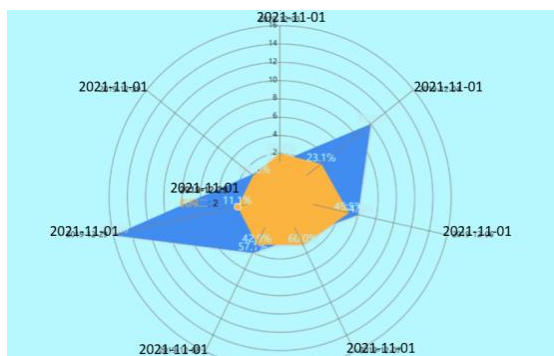


Fig.3.Statistical analysis

### 5. Conclusion

Dream cloud ERP system based on Java-inventory management subsystem v10. It is a management software based on inventory management in many parts of the enterprise. The software has powerful functions. It is mainly aimed at the related inventory management functions of the enterprise background administrator to manage inventory, such as inventory setting, opening inventory, transfer doc, disassembly doc, count doc, other receipt doc and other issue doc, In addition, there are functions such as inventory history and statistical analysis. The software interface is clean and simple to operate. Users can intuitively view the real-time results of system management. The system has a good user experience effect.

At present, the inventory management level of China's enterprises, especially small and medium-sized production enterprises, still stays on the basis of paper media. Such a mechanism can no longer adapt to the development of the times, because it wastes a lot of human and material resources. In the information age, this traditional management method is bound to be replaced by computer-based information management.

Therefore, in this case, it is very necessary to replace the manual inventory management system with such a collection, which has the advantages of fast retrieval, convenient search, high reliability, good confidentiality and low cost. Dream cloud ERP system based on Java - inventory management subsystem v10 provides great convenience for enterprises to process the data statistics of inventory information management, make the information clearer, make the data query easier, and promote better communication between enterprises. The

system runs stably and is convenient for daily maintenance.

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