Design and Implementation of Logistics Management System Based on SSH Technology

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Abstract. Economic globalization and the rise of e-commerce make the scale of modern logistics company's cargo transportation more and more large. In this context, the service quality of logistics enterprises often depends on the future of logistics enterprises. Through the establishment of a scientific logistics management system, comprehensive integration of logistics management information, optimization of its process, and ultimately achieve the purpose of improving the efficiency of logistics management business, reducing operating costs, and enhancing the competitiveness of enterprises.

Keywords: Logistics management, SSH technology, SQL database, Object oriented

1. Introduction
With the rapid development of e-commerce market, the market competition is more and more fierce, which also promotes the logistics enterprises to improve their logistics operation efficiency [1]. In order to explore the market and seek different market positioning, many logistics companies have developed logistics management services. Facing the major cities in China, the service provides online ordering and regular delivery services [2]. This system can integrate logistics distribution operation and operation management, and master the data of each distribution center and distribution network in each business processing link in real time. Therefore, the establishment of logistics management system is of great significance to the management and development of commodity sales and distribution of logistics companies, as well as to further improve the service level of logistics distribution and create good economic and social benefits.

2. Analysis of logistics management system
According to the actual situation of the logistics management system, we go deep into each logistics management information site to operate the existing business process, and have a visual understanding of the functional requirements of the platform[3]. Based on this analysis, we put forward the functional requirements of the platform. It should realize the functions of logistics order, logistics warehouse management, logistics distribution, customer relationship, financial statement, system setting management, etc. The system function structure is shown in Figure 1.
Figure 1. The system function structure.

1. Logistics order query and tracking

Logistics order query and tracking is a unified management of all logistics order statuses, order pickup customers, and order information. You can display the order on the page, count the order information, or add, modify, or delete the order information[4].

2. Logistics distribution

It mainly includes the distribution quantity, logistics weight, distribution round-trip point, logistics area distribution, logistics time, logistics service praise rate and other information, which can be used as the performance information of logistics personnel to participate in the company's business assessment system.

3. Statistics of financial statements

The financial statements of logistics companies are mainly for the statistical management of the income and expenditure of logistics business. The revenue includes freight revenue, insurance revenue, reconciliation revenue and storage cost, while the expenditure includes tax, preferential amount, oil cost, vehicle maintenance cost, transportation cost, parts purchase cost, etc[5].

4. Customer relationship maintenance

The business development of logistics companies must rely on the stability of customer groups, so the customer relationship management part is also set up a more perfect function. Customer relationship maintenance includes customer information management, customer group setting and customer query.

5. Logistics warehouse management

The specific requirements of this part include: goods location allocation, goods shift, location inventory monitoring and inventory type change.

6. System settings

The function of system setting is mainly to set up and maintain the system, including user permission configuration, adding various users and editing operations. The login information and operation information of the system can be saved by users and used as historical data; various information codes of the information can also be managed and configured, and the password of the user can also be modified.

3. Design of logistics management system

After the detailed requirement analysis of the logistics management system, the first step is to determine the function and performance requirements of the platform[6]. According to these requirements, the overall framework of the platform is designed, so that the system has a stable and reliable operation basis. Next, the system is designed in steps.

3.1. System architecture

The logistics management system architecture is shown in Figure 2.
Figure 2. Architecture of logistics management system.

Logistics management system is based on SSH technology, supplemented by MVC technology. The system uses AOP/IOC programming method, while the database system uses SQL 2012, which is a three-tier architecture under SSH platform. The three-tier architecture of the logistics management system will be explained in layers [7].

(1) Page presentation layer
In this layer, the information of the platform can be input, queried and displayed, which is mainly responsible for the exchange between the user and the front-end interface of the system. The so-called presentation layer, as the name implies, only considers what kind of transmission form to display to users. In the presentation layer of the page, only focus on whether the interface display of the express delivery information management system is normal.

(2) Business layer
This layer is mainly responsible for processing the request information sent by the browser, and judging the validity of the request information sent by the government information platform, so as to ensure the correct operation of the platform. The user needs to be verified to log in. The user is allowed to continue only after entering the correct information. The data is searched and verified in the application service layer. Only the verified user can carry out the next operation.

(3) Data service layer
The operation object is all kinds of data in the background database. The system queries, adds, deletes and edits the data, and displays the data output results. All operations on data are processed at this level only.

3.2. Functional architecture of the system
Specific to each functional module, such as the logistics warehouse management module, can not only realize the management of logistics warehouse management information, but also can carry out comprehensive management of warehousing registration, warehousing record query, manual
adjustment, etc. The main function goal of the system is that the user can enter the network management interface through the personal computer or terminal which can be connected with the network, input the authorized user information to log in the system and carry out various operations. At the same time, the system also requires that the user behavior can be recorded, and the data of the platform can be backed up and restored. On the other hand, the system also needs to develop a strict security control strategy to assign flexible operation rights to users.

3.3. System function design
Different modules of the logistics management information system have their own distinct characteristics. The following will be described in detail according to the different characteristics of the modules.

1) logistics order management module
   Logistics order management is a unified management of all order statuses, order merchants and order information. It can add, modify and delete orders, display orders on pages, and count order information.
   Document query is to query the customer's own goods information through a unique number after the order is successfully released and before the goods are delivered. In the system order query function, query criteria include order name, order serial number, order purpose, usage method, order type, order status, and order type. Among them, it is mainly aimed at the statistics when there are more logistics to be delivered in the same time period. For the design idea of the module function, it can be simply reflected by its operation flow chart. In the process of logistics order management, the first step is to verify the login information.
   If you confirm to save the information, the logistics order information in the system database will be updated, and the order message will be displayed after data processing, otherwise the appeal operation will be abandoned. The query results will be displayed in the function interface. You can choose to fill in the operation information and confirm whether to save the appeal operation in the next decision node. After confirmation, you can safely save and exit.

2) logistics warehouse management module
   The warehouse management function of logistics is that after the enterprise stores the goods in the warehouse, the warehouse needs to maintain and manage the information of the goods. Logistics warehouse management realizes the management and maintenance of goods information in the warehouse. According to the specific functional requirements of the module analyzed above, the module design mainly includes four sub modules, which are: Cargo location allocation sub module, cargo shift sub module, location inventory sub module and inventory type change sub module.
   The sub module of goods storage location allocation is a process of allocating and managing the storage location of different kinds of goods. Once the warehouse location allocated for a certain kind of goods is full, it is necessary to find a way to arrange another empty warehouse location for the goods before inventory. After the empty warehouse location is reserved, the system will prompt to complete the operation before further goods warehousing. In other words, the location allocation of goods is a necessary condition before warehousing.
   The system's inventory type change sub module is mainly used to divide the various materials stored in the warehouse into different types such as genuine products, defective products and pending products according to the quality.

4. Realization and test of logistics management system
The function of system setting is comprehensive, including six functional modules, such as logistics order, financial statement, logistics warehouse, logistics distribution, customer relationship, system setting management, etc. The following is a brief description of the realization of each functional module.

4.1. Logistics order management function module
In the implementation interface of logistics order management, users can add, delete and query logistics orders. Among them, document checking refers to that after the order is successfully issued and before the goods are delivered, the customer queries his / her own goods information through a unique number.

The main steps of order management module are as follows:

1. Define the order category. The content of this part is to define the order information category by locating the order category.

2. The system analyzes the order information code. Order management is mainly to find common ground with similar business activities in the system. Because the CSS style in its address is named "default2", the system will automatically find the order category information with the same field in the platform database.

3. The "intermediate component" of the system will correspond to the form PM "deptforminfo" operation in the database according to the type of processing data, and complete the update of the form data in the personnel information database.

4. The system defines the interface class FormView to add, modify, delete and copy the word list information data by calling the functions adddata (), updatedata (), deldata () and copydata ()

4.2. Back end of cross-border e-commerce logistics traceability system for agricultural products

In the implementation process of logistics warehouse management, you can perform the operations of "goods location allocation", "goods shift", "location inventory" and "inventory type change". In terms of the "location inventory management" function of logistics warehouse management, the administrator can view the inventory status of the goods of the owner in different locations of the warehouse. The goods can be marked as "ready to purchase", "already in stock", "sorting" and "ready to issue" in the system, and click "real-time statistics" to count the specific inventory data, so as to make better inventory Follow up arrangement.

The warehousing procedure of the logistics warehouse refers to the collection of the stored information of the express labels waiting to be delivered through the electronic label reader. In the logistics order operation of the system, the user clicks the "electronic appointment form" to check. When the user "confirms" the information matching, the logistics personnel will rewrite the express delivery status in the label, and the system will modify the corresponding data to deliver the express after the formalities are completed, transfer and delivery are allowed.

The prominent function in the realization of logistics warehouse management is to judge the inventory status of goods. At the time of design, the statistical information of cargo management in the warehouse is used. Argo count TF is used as the key to determine the inventory status of goods. If the value is 0, the inventory is insufficient and replenishment is needed. If the value is 1, the inventory is sufficient. The initial management information of each logistics warehouse. The status of Argo count TF is 0. The value of cargo count TF will be changed to 1 only after the confirmation of the person of the logistics distributor and the online confirmation of the system software to determine whether the inventory is sufficient and whether replenishment is needed. The workflow of inventory management is shown in Figure 3.

![Figure 3. Workflow of inventory management.](image-url)
5. Conclusion
Based on the purpose of optimizing the logistics management process and the idea of information construction, this paper tries to solve the problem that the demand and practical application of traditional logistics enterprises are separated in the distribution management, so as to achieve high-quality logistics management. It facilitates the implementation of modern management of logistics information. In modern society, information technology has become the trend of social development. With the rapid development of social economy, the network of logistics enterprises is all over the country. The implementation of effective logistics management is of great significance for the sound development of logistics enterprises.

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