Research on Sales Management System of Machinery Manufacturing Enterprises Constructed by Computer Technology

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Abstract. With the development of Internet technology, many enterprises are using computer technology to improve the efficiency and quality of business management. This research builds a sales management system based on the needs of enterprises for sales management. The main users of this system are the sales and management personnel of machinery manufacturing enterprises. The system will automatically count and analyze the business data of the enterprise, and the employees of the enterprise can freely conduct statistics and search on the business data of the enterprise, which effectively improves the analysis and decision-making ability of the enterprise.

Keywords: Computer Data Technology · Machinery Manufacturing · Management · System

1 Introduction

In recent years, the popularity of Internet technology has become more and more extensive, and many enterprises have successively adopted computer technology as an important means of business management. Computer technology has helped many companies open up innovative sales management models [15]. As a traditional manufacturing industry, machinery manufacturing enterprises need to adapt to changes in the market, use today's information technology to improve enterprise management methods, and improve the market competitiveness of enterprises. Nowadays, the computer systems used in many enterprises do not carry out integrated management, so that although the communication within the department is relatively smooth, the information can not be efficiently transmitted between departments and information sharing is achieved. The occurrence of this situation will affect the collaborative work of the internal departments of the enterprise [9]. Manufacturing enterprises should pay more attention to the coordination between departments. There are a large number of parallel and serial workflows in the marketing department of manufacturing enterprises, which requires a high degree of information sharing with other departments [13]. The integrated and comprehensive management system within the enterprise can realize the automation of enterprise business processes, reduce the inconvenience caused by traditional work processes, link enterprise marketing with production and logistics links, realize the integrated production and sales of enterprises, and improve the information sharing rate.

2   System Requirements Analysis

2.1   Analysis of User Needs

This sales system is a system used by machinery manufacturing enterprises, so the users faced by the system are divided into two categories, namely enterprise sales personnel and enterprise management personnel. To build an application system, the first thing is to collect user requirements for the system [3]. Enterprise sales personnel need to understand their own sales performance through various forms of visual graphic reports, and fully grasp the sales status of machinery and customer appointment service arrangements. Salespeople also need to know the inventory in the corporate warehouse and the machinery that can be deployed in order for the business to run. Sales staff also need a communication and exchange platform between their departments, where users can discuss and learn from each other [2].

Managers need standardized charts to understand the performance of each sales team in the enterprise, and help users manage the enterprise. Admin users can monitor and supervise sales activities and teams remotely [10]. The sales chart displayed by the system can be compared vertically and horizontally, providing valuable decision-making basis for managers. Managers need to master all the mechanical conditions of the enterprise, and timely approve the submitted applications to ensure the optimization of sales performance. Managers need to obtain important information about the business and monitor sales performance. The system should help managers to track the daily performance of enterprise employees in a comprehensive and timely manner, making enterprise business management and remote control more accurate [11].

2.2   System Performance Requirements

Considering that the sales system of machinery manufacturing enterprises needs to provide services to many people, and to provide users with a smooth operating experience and a friendly user interface, there are certain requirements for the performance of the system [12]. First of all, the system must support multi-user concurrent operations, and can run stably and smoothly during multi-user concurrent operations, and the corresponding speed of the system should be fast [7]. Users need to operate the system quickly and proficiently in order to make better use of the system to improve efficiency. This sales system is a system program based on the Internet communication. The main means of access for users of this system is an intelligent mobile terminal, so the system needs to be able to support IOS system, Android system and Windows mobile terminal system. The upgrade and maintenance of the system should also be relatively simple, and the client version should be unified as much as possible. The data structure in the system should be clear, and there should be no data redundancy [8].

3   The Framework of Sales Management System for Machinery Manufacturing Enterprises

3.1   System Front-End Architecture

The system uses a CSS production framework, extends CSS3 in the framework, and adds features such as rules, variables, mixins, selectors, and inheritance. Sass generates
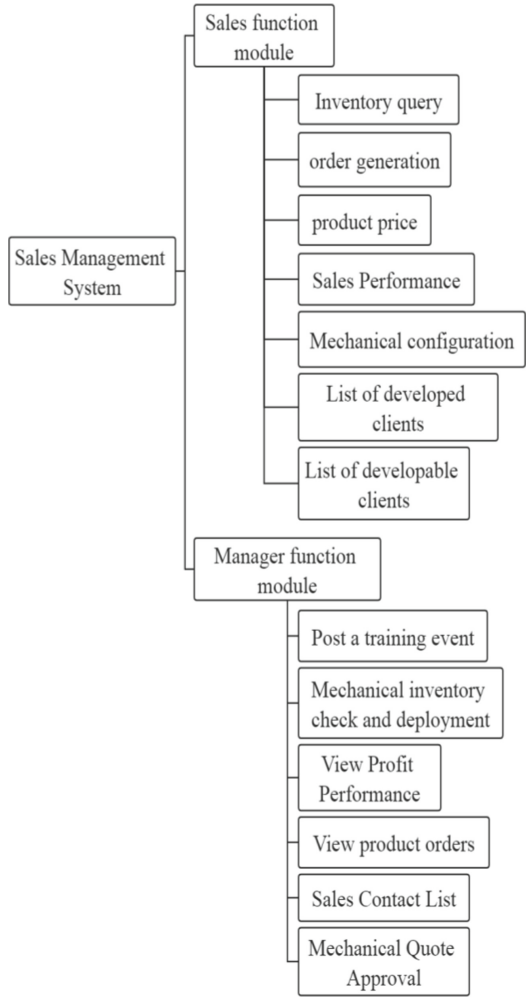
Sales function module
— Inventory query
— order generation
— product price
— Sales Performance
— Mechanical configuration
— List of developed clients
— List of developable clients

Sales Management System

Manager function module
— Post a training event
— Mechanical inventory check and deployment
— View Profit Performance
— View product orders
— Sales Contact List
— Mechanical Quote Approval

Fig. 1. System Functional Module Architecture

well-formatted CSS code that is easy to organize and maintain systematically [1]. The system's build tool uses Webpack, which can prepare the static resources to be published in the browser segment through the CommonJS syntax, and compress and package the front-end part of the project. In order to enable the system to effectively adapt to mobile phones, tablets and PC devices, the UI framework used by the system is Bootstrap v3+ [4].

3.2 System Function Modules

The system sets up two modules according to the user's category, namely the sales function module and the manager function module (Fig. 1).

Table 1. Customer Information Form

column name	data structure	length	primary key or not	Function description
ID	int	4	yes	The customer's number, which is also a unique identifier
Name	varchar	50	no	customer's name
Company	varchar	200	no	Client's company name
Location	varchar	200	no	Customer city location
Phone	varchar	20	no	customer contact information

Table 2. Salesperson Information Form

column name	ID	Name	Phone
data structure	int	varchar	Varchar
length	4	50	20
primary key	yes	no	no
Function description	The number of the salesperson, which is also a unique identifier	salesperson's name	Salesperson's contact information

According to the analysis of user needs, it can be learned that mobile client users are mainly enterprise salespeople and managers. In order to make it easier for users to view sales information anytime and anywhere, the functional modules of the system can be displayed in the mobile client.

3.3 System Database

The system database is mainly composed of multiple tables. This article uses the Mysql database system. The most important data in the system is machinery sales information management and customer information management [5]. The gradual numbering of data tables can distinguish two kinds of information. There are multiple data tables in the database, and there will be information interaction or association between these tables, so it is very important to list the system table structure [15].

This form is used to store the profile information of corporate customers (Table 1).

This form is used to save the sales personnel information in the enterprise (Table 2).

This form is used to save the information and data of mechanical spare parts, which can help enterprises to carry out after-sales management (Table 3).

The article lists three main tables in the database. For the stability and integrity of the system, there are many similar tables in the database to record enterprise sales management data [6].

Table 3. Spare parts information table

column name	type of data	length	primary key or not	Function description
Class	varchar	50	no	Spare parts category
ID	int	4	yes	Spare parts code, which is also a unique identifier
Name	varchar	100	no	Parts name
Type	varchar	100	no	Matching machinery, corresponding to the category code of machinery
Price	Decimal(8,1)	10	no	Spare parts prices
Stock	int	4	no	spare parts inventory
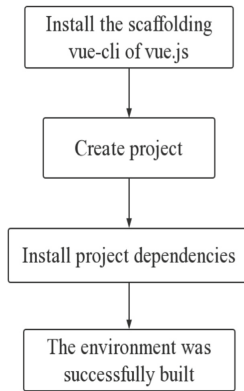
Fig. 2. Project realization process

4   Realization of Sales Management System for Machinery Manufacturing Enterprises

The operating system used in the construction of this system is Windows 10, the database is MySQL 5.5, and the server is Tomcat 7.0.

In this article, Vue.js is used as the front-end framework. In order to meet the development environment of the vue project, node.js and cnpm must be installed first, and then the global vue-cli scaffolding must be installed, and then the required template framework can be built (Fig. 2).

In the system construction, the system constructed in this study adopted the BS/CS hybrid development model. In BC mode, you can just use your browser. In CS mode, the user can use the mobile client to process the work in the system and upload the data to the system. The hierarchical architecture of the system is shown in Fig. 3.
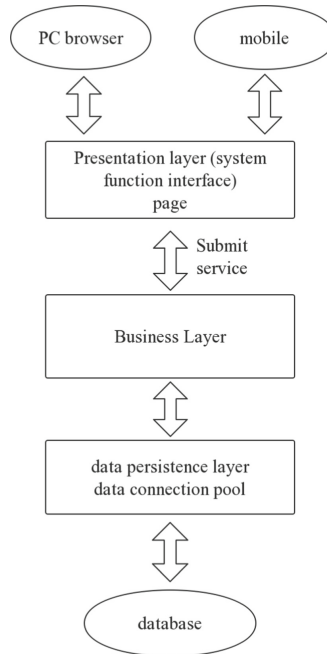
Fig. 3. System hierarchy

At present, multi-level architecture wood work is commonly used in enterprise management system. The architecture of the system uses the classic enterprise architecture, which improves the applicability and practicability of the system.

The user representation layer is the connected part of the user to the system. In the system, the interactive interface is implemented through the JSP page, mainly responsible for sending requests and receiving accordingly. The user representation layer will show the system information to the user, at which the user will click, select, input and other operations.

The business logic layer complex processes data and completes the business logic. At this level, the system will manage the sales business, basic information, customer information, and so on.

The data persistence layer is responsible for interacting with the persistent objects. The data persistence layer sends requests to the database in the system to the database and returns the processing results. At this level, you can insert basic data, delete data, update data, query database and other operations.

In order to provide the interface to the mobile terminal and realize the operation of accessing the platform data, the system provides the open interface. API services can also interact with data with other platforms or portals on the Internet. To ensure the security of API service, the system uses web server access based on server authentication.

When a third party visits the interface of the platform, the system obtains the request header of the interface caller and determines whether an appid or sign is carried in the head. If not, the error code is returned and the request cannot be fulfilled [14].

After verifying the head, the system verifies whether the cloud platform has the caller, that is, judging whether the appid exists. After confirming the existence of the appid, start the next step of verification.

Next, you begin to verify that the signature is complete, comparing the sign to the MD5-encrypted string of the appsecreat in the database. Once the system finds a consistency, you can start enabling the interface.

5   System Feasibility Analysis

This system builds a network-based system that is economically cheaper and easier to adjust later. The sales system can realize the open management of machinery manufacturing enterprises and build a modern sales model. The application of computer system in enterprise sales can make full use of and share network information and management resources, and carry out scientific and standardized management of enterprise resources. The use of computer system in the enterprise can help enterprises save a lot of manpower and material resources, improve the quality of management personnel Erhai sales staff and work quality. The benefit of sales system is greater than the development cost of system software, and it is economically feasible.

In the Web1.0 era, engineers generated pages on the server, and the browser was responsible for the presentation. This model is simple to develop, but as the enterprise continues to progress, the business will become more and more complex, system calling relationships will become cumbersome, and it becomes difficult to build this simple front end. Therefore, this system adopts front-end systematic tool, front-end component framework, front-end engineering and front-end modularization. This modern system development model in the front and rear end responsibility is clear. The front end works on the browser segment and the back end works on the server side. This clear division of labor can put development in parallel. The whole section is developed locally, and the back end focuses on business logic processing and output interfaces. Each deployment of the system is relatively independent and suitable for rapid improvement of the system.

6   Conclusions

This paper constructs a system software facing the sales department of machinery manufacturing enterprises, and focuses on the research on the sales of enterprises. The framework for building a project in this article is also applicable to other companies. This system can collect data in the process of enterprise operation and management, and visualize the data, which can increase the degree of enterprise informatization and provide better technical support for the development and improvement of the enterprise. In the next step, this paper will continue to further improve and improve the data visualization.

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