

# *Application Analysis of Computer Database System in Information Management*

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**Abstract:** With the rapid development of computer technology, China has gradually entered the era of big data, computer has become an important tool for people's production and life, and the use of the Internet to share and transmit all kinds of data and information has become the normal enterprise production and operation. The emergence of the computer database system has brought more possibilities for the production and operation of enterprises. With the help of computer database system can make enterprise information management more targeted and practical, greatly meet the needs of people's use, and further promote the significant improvement of enterprise information management level. This paper will take the computer database system as the primary focus of its research. Through the analysis of the characteristics and advantages of this system, and in conjunction with the digital model of the computer database system, it aims to investigate the necessity of its application in information management. Additionally, the paper will focus on exploring the specific applications of the computer database system in information management, aiming to assist in the efficient completion of information management tasks and striving to enhance the development of the computer database system in the future.

## 1. Introduction

Computer database system is an important part of information technology, its application in information management, not only can play the role of storage, but also can undertake the information retrieval, retrieval, deletion, processing and other tasks, to provide great data support for information management. With the help of the application of computer database system in information management, it can effectively improve the pertinency and effectiveness of information management, make information management more adapt to the development requirements of modernization, provide accurate data information services for people's production and life, and improve the quality and efficiency of information management.

## 2. Computer database system

### 2.1 Overview

Computer database system is a software system based on computer carrier, which integrates the storage and maintenance of information and data, and provides data for various requirements and purposes. It can integrate various data and information into extreme and internal file forms, easy to store and call, and can be regarded as the storage media of information and the collection of information processing system. In the application, the computer database system can be combined with the actual needs to establish databases of different fields and different uses, so as to achieve the expected purpose of data processing. The application of information management technology can have a significant impact on the industrial structure and organizational mode of society. This impact is achieved by providing fundamental support for information activities in human society, and by realizing the rational development and utilization of information resources<sup>[1]</sup>.

### 2.2 Features

Computer database system has the following characteristics: (1) structural characteristics. The main feature is that the database system can accurately classify the information data, ensure the structured distribution of the input information data, and set the categories of the data. Figure 1 is the schematic diagram of the structured classification of the computer database system.(2) Independence characteristics. This characteristic refers to both the logical independence and the physical independence<sup>[2]</sup>In other words, the operation of the database can form the independent operation of the program. A large amount of data information in the database can realize the independent operation of multiple degrees of data, including classification, organization, coding, storage, retrieval, maintenance and other programs, which are independent and are not affected by other programs. This independence can not only ensure the security of the database, but also enhance the service of the database.(3) Flexibility characteristics. The so-called flexibility is mainly able to provide diversified services for different fields with the advantages of the database itself, to meet people's different production and life needs, and then to achieve different practical purposes. In practical application, different practical information technology can form different uses. In addition, the functionality of the database system is not invariable, can be adjusted according to the actual needs of users, to provide users with independent control, facilitate the flexible practical database for effective information management.(4) Shared characteristics. This feature is related to the composition of the database system, which can break the shackles of time and space<sup>[3]</sup>. The database system is mainly composed of database, hardware, software and data administrators, and the sharing is the collaborative operation of the data information in the database, and then forms the sharing of resources, reflecting the shared attributes of the database system. This kind of sharing is operated on the basis of ensuring security, and set a certain sharing mechanism, and through the secure login and identity authentication process, the database information is viewed and accessed. With the help of this sharing, it can not only provide great convenience for information management, but also enrich the data sources, set up multiple information subjects, and improve the information management system.(5) Characteristics of controllability. This feature is mainly the functional embodiment of the redundant information in the database, which can effectively control the information redundancy. Information redundancy is generated by the fixed organization form and sharing characteristics of the database, and the waste of database space is formed with the help of mutual data copying practice<sup>[4]</sup>With the help of the controllability characteristics and versatility of the database itself, it can effectively eliminate repeated data, identify data information to the maximum extent, reduce the data leakage, provide accurate retrieval, but also effectively shorten the

retrieval time, and effectively enhance the experience and accuracy of information management.

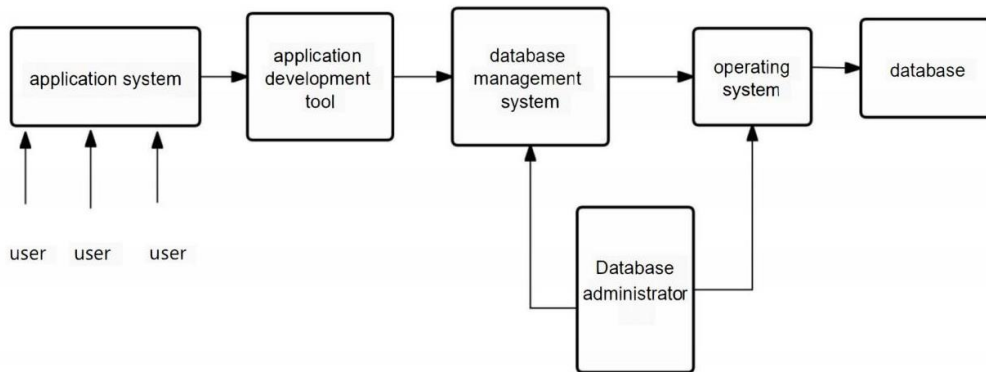


Figure 1: A Schematic diagram of the systematic structured classification of a computer database

### 2.3 Advantage

Computer, database system itself can build a relationship model, and form a high physical independence and logical independence, and then with the help of hierarchical database, network database, relational database and other forms<sup>[5]</sup>, So that the database can effectively counter the information load, to provide a more convenient way for data processing. Thus also let the database in the practical application has a great control and management advantages. For example, enterprises engaged in the production and operation of information data encounter significant challenges in information management. However, by leveraging computer database systems, they can establish a clear and comprehensive management and storage system for complex data information, effectively identifying similar content, efficiently processing repetitive data, minimizing data redundancy, conserving storage space, and enhancing data accuracy. Furthermore, this approach enhances work efficiency, facilitating enterprise data querying and retrieval.

## 3. Necessity analysis of the application of computer database system in information management

### 3.1 Meet the security requirements of information management

The security of information management is the key point, whether personal information or enterprise information, it is necessary to ensure the security of information. Once information data leakage occurs, it will cause very serious consequences and losses, and even related to the survival of enterprises. The use of computer database system can effectively guarantee the security of information management, minimize the possibility of information and data leakage, and promote the healthy development of enterprises. Enterprises past information management mode has been unable to meet the demand of current information data management, to the quality and management form promotion innovation, the application of computer database system can effectively meet the demand of the information management, adopt scientific measures, to ensure the security of information data, maintain user privacy, can effectively eliminate the loss of information leakage. In addition, in the process of information management, some criminals will use hacker technology to invade the information system, which seriously threatens the data security of enterprises. Combined with the database system security management technology, the data can be encrypted to different degrees where the data is entered, and the security detection system can be installed in each storage

link<sup>[6]</sup>For the problem of information leakage or tampering, a special way will be taken to issue a security alarm, effectively enhance the security of information management and avoid criminals stealing data information. The database login access identification function can also verify the identity of the visitors, and set different security levels, effectively ensure the security of the database.

### **3.2 Provide convenient information management services**

In the process of information management of enterprises, it also requires certain convenience, too complicated or cumbersome management procedures, or increase the work pressure of enterprise information management, seriously affect the normal operation and management of enterprises, and will form the waste of human resource costs. Based on this, with the help of the computer database system, it can provide more convenient function assistance for information management, facilitate users to obtain the desired information in a short time, and effectively improve the management efficiency. At present, the database system has been able to provide strong control and management services for the information management of enterprises, and then enhance the adaptability and operability of information management, forming fast data collection, but also can provide convenient data storage and retrieval, maximize the effect of information management. In addition, with the continuous development of computer technology, the current database system can also provide a variety of visual data calling services for information management, so as to meet people's needs for information management.

### **3.3 Promote the efficiency and improvement of information management**

In order to promote the high-quality development of enterprises, the information management work should be gradually improved, so as to facilitate the integration and analysis of the production and operation data, and make full use of the data and information to formulate enterprise business strategies. Efficient information management helps enterprises to use useful data, analyze the market demand and development trend, formulate better strategic planning, and improve their market competitiveness. Therefore, the application of computer database system in information management can form the intelligent development of information management, provide more possibilities for management, with the help of perfect functional modules, help enterprises to carry out more accurate information management, and then improve the efficiency of enterprises. For example, in the field of construction engineering, construction units need to collect and organize multi-source data before the project starts. In the past, manual information management takes a long time, and there are often artificial vulnerability errors. And with the help of computer database system can systematic information collection and management, according to the actual needs of enterprise classification of information storage, using the database intelligent algorithm data analysis and prediction, to identify the accuracy of engineering surveying and mapping data, and can combine the visualization function of the database, establish 3 d data model, provide more intuitive information support for various departments, significantly improve the work efficiency and quality.

## **4. The application of computer database system in information management**

### **4.1 Application in comprehensive management**

In the process of enterprise information management, due to the increase of business volume, the volume of data needed to be managed gradually increases, which makes the traditional information

management mode not suitable for the information management at the present stage. Therefore, the application of computer database systems in information management not only guarantees the security and confidentiality of enterprise information data [7], but also enables the formation of a diversified and comprehensive management system, thereby facilitating enterprises in making strategic decisions based on information data.

The main functions of the functional modules of the computer database system are shown in Table 1, which can form the sharing of data resources among various departments, ensure the integrity of enterprise information, and give full play to the maximum value of information data. In addition, in view of the demand of diversified enterprise development, computer database system can also provide visual data storage, images, video and other types of data classification storage, can meet the demand of enterprise, facilitate the development of the industry, the present situation of production and operation analysis, so as to establish a more efficient and efficient business model.

Table 1: Introduction of the integrated management function module of the computer database system information

module	Functional effect
DA	All kinds of information in the database are classified and extracted to ensure the normal realization of the system initialization function. At the same time, the parameter configuration and parameter loading can be checked twice to ensure the orderly development of the data business in the system
Data upload	The collected data is input and integrated, and compared one by one according to the relevant parameters of the database to ensure that the data service can meet the basic service configuration
data buffering	Provide a transition platform for data output and loading, ensure the simplification of data in the system, and follow the corresponding data datum operation
task management	The information transmission mechanism in the database is constrained to ensure that the execution of relevant tasks in the system can meet the custom requirements of the system, and ensure the order of the whole data processing process
Data monitoring	Ensure that the information transmission path in the operation process of the database system is traceable, and ensure the reasonable operation of the data flow and other business work
Query statistics	Ensure the integrity of the data information in the system, and provide storage conditions for the processing of related data services

## 4.2 Application in security management

With the continuous development of computer technology, the level of information and data integration of the database system has been improved, which not only enhances the information processing speed of the database system, but also makes the database establish an effective connection with the outside world, and can call the information and data resources on the Internet anytime and anywhere. However, this kind of network interconnection also brings challenges to the security prevention and control ability of the database. Hence, it is imperative to enhance the security performance and protection level of the computer database system efficiently and strengthen the computer database technology [8]. This endeavor aims to safeguard the database from malicious access and prevent the leakage of sensitive enterprise information resources.

In view of security is an important index to consider the level of computer database information management, is related to the database system can be used, it is necessary to strengthen the development and security management of database system, to ensure that the information sharing service can be provided, to avoid the leakage of key information. Dual-machine thermal standby and load balance can be used to enhance the safety performance. Combined with the operation process of the computer database system (as shown in Figure 2), the integration of various data in the system should compare internal parameters to form the supervision of confidential document information.

In addition, to improve the security of the computer database system, the following measures can also be used: (1) data security protection. In order to increase the firewall construction of the computer database system, the system access filter intensity level can be appropriately increased, to ensure that the access process needs to go through strict firewall processing and analysis, can log in the database system.(2) Encrypt the database information. Enterprises should encrypt the confidential documents and set the corresponding confidentiality level. The confidential documents cannot be accessed without authorization, and should ensure the security of the access environment, and set the authority according to the level of authorized users. General users can only access and read them, with no permission to download and delete them.(3) Strengthen the safety audit records. In the form of database system access to the log, the computer to track and record all access to the user information, and effectively identify user identity, to affect the normal operation of the database, to blacklist its access rights, for the behavior of illegal storage of data information, to reasonable disposal, to ensure the security of the database information.

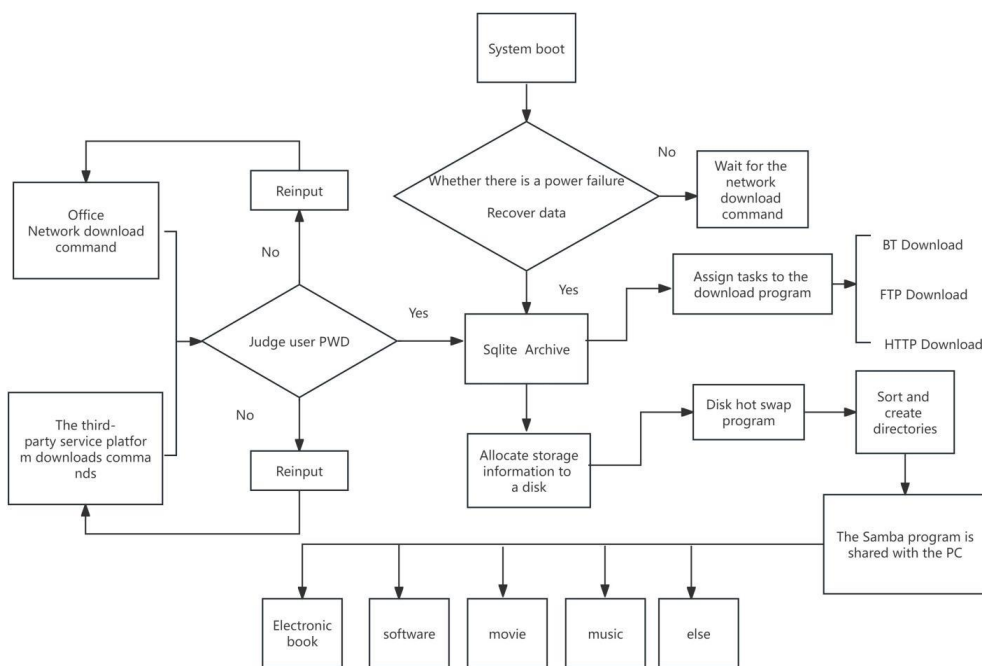


Figure 2: Schematic diagram of the computer database system program operation

### 4.3 Application in data acquisition

At present, the data collection work in the enterprise information management, with the help of the computer database system, can achieve more efficient and complete collection and input. Ensure the integrity of the data. Among them, the intuitive embodiment of the database system can be used to improve the level of information management has been improved, and in practice, more mature

operation and application<sup>[9]</sup>To form a more information based breakthrough. For example, with the help of the computer database system, the structured information storage of traditional texts and images can be converted to the more three-dimensional unstructured information data storage of images, sound source, animation and so on at the present stage, highlighting the characteristics of diversification and scale of the database system.

In terms of enhancing the integrity of data collection management, related to security management, can improve their own security capabilities to a certain extent. The specific integrity collection measures are as follows: (1) Enhance the design of the database system. See figure 3 for the design process, to ensure that it can be included in the collection channels and form a comprehensive collection of the data required by the enterprise. (2) The data input process should be controlled to ensure the integrity of the client information and data input, and an effective isolation of illegal data and information should be formed to enhance the practicability and effectiveness of the database. (3) Ensure the accuracy of data entry. In information management, mandatory detection means can be appropriately set up to ensure the accuracy of data, and combine the database with required items to ensure the accurate source of data and enhance the credibility of data. (4) To establish multi-channel information acquisition channels, one should set multiple business information collection ports for the database and enhance the comprehensiveness and accuracy of the collected data with the help of the intelligent comparison function of the database system. (5) Establish unified collection standards. For the data of different ports, unified standards can be used to ensure the consistency of data, facilitate the formation of data integration and analysis, and ensure the complete and effective characteristics of information.

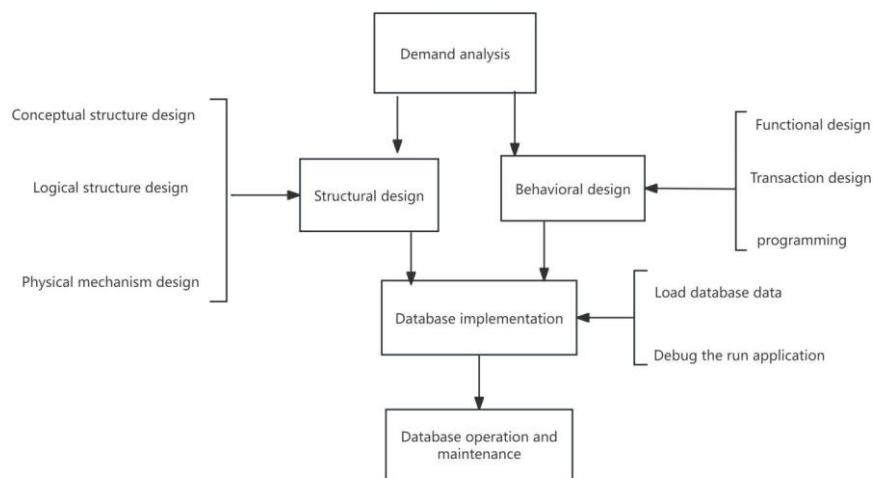


Figure 3: The database system design process

#### 4.4 Application in the combination of theory and practice

In the process of information management, the application of computer database system can realize the combination of theory and practice. From the theoretical level, with the help of the stable operation of the database system, the security problems and collection problems in information management can be effectively solved, easy to enhance the stability, reliability, accuracy and effectiveness of information management. At the same time, the application efficiency and application dimension of the database system can enhance the scope of information management, so that the information management can give full play to its value. From the practical level, the computer database system can also provide effective management mode for information management, so that the information management of enterprises is more standardized and modular,

forming an effective combination of internal and external information of the enterprise, and constitute a good information resource system. Combined with the actual situation of database application, strengthening the dual analysis of theory and practice can strengthen the development momentum of database system and expand the application scope of database system in information management. For example, in the information management of the total sales volume of enterprises, the SUM function can be used in the database to sum the sales volume information, and the formula: SELECT SUM (sales) FROM sales \_data can be used to quickly form the information management and statistics of the total sales volume.

## **5. Future development trend of computer database system**

### **5.1 Personalized service**

Computer database system has significant advantages in information management and can bring good management effect for information management. Based on the current application status of the database system, a more diversified development trend will be formed in the future to provide more personalized management services for enterprise information management. The main manifestations are as follows: (1) balancing the differentiation of information data, combining the actual production and operation needs of the enterprise, carrying out intelligent equipment, providing product differentiation comparison services in information management, and further expanding the application field of database system.(2) Form in-depth analysis based on the needs of enterprises, and develop more personalized functional services based on the actual information management of enterprises, so as to further reduce the communication cost<sup>[10]</sup>, For the enterprise to better win the market favor. Among them, the big data technology of the computer can be used to mine the potential customers of the enterprises, and the personalized service list can be formulated, so as to facilitate the collection and sorting of the related resource information in the information management, so as to better serve the enterprise information management.(3) Increased degree of systematization. In the process of information management, the computer database system is bound to form a complicated and diversified development, and the collaborative application of more technologies will form a new technological change of information management.(4) Development trend of intelligence. Computer database system application in information management, mainly relying on the efficient operation of computer technology, and with the upgrade of computing technology, the database will provide more intelligent service for information management, improve the level of information management at the same time, also can integrate more artificial intelligence technology, make information management present automation, intelligent development, significantly improve the efficiency of enterprise information management.

### **5.2 Network security defense**

In the process of intelligent reform of information management, the database system should also combine with cloud computing technology to continuously strengthen the network security defense<sup>[11]</sup>. The specific defense technology optimization content is as follows: (1) architecture optimization. Computer with the help of cloud computing technology, the use of virtual machine running vulnerability software, analyze the nodes in access log, network security defense architecture design, can improve system monitoring and the performance of alarm program, let the program for virtual network system state analysis and status report, and joint immune processing module, improve the database system network security defense capability, implementation of a variety of network viruses and malicious software.(2) Process optimization. With the help of cloud computing technology, the security defense process of the system is sorted out. After the



optimization of detection, reporting, processing and deployment, the security defense capability of the system can be improved.(3) Strategy and optimization. According to the characteristics of cloud computing technology, a tree network defense structure can be established to set up a multi-layer defense mechanism, which can form a comprehensive acquisition of the database system state, form a multi-level security defense, and effectively enhance the security of information management.

## 6. Conclusion

To sum up, the application of computer database system in information management is of great significance. It can not only provide a more convenient mode for enterprise information management, but also enhance the security of information management, and reasonably carry out reasonable information analysis and call. At the present stage, the computer database system has occupied a certain share in the information management, and the future is bound to form a comprehensive occupation. Enterprises should actively build the internal database, do a good job in information collection and collation, with the help of the advantages of the database, so that their own information management ability has been comprehensively improved.

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