

# Practice and Application of Computer Database Software in Information Management

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## Abstract

With the rapid development of modern network technology, the application of information technology has become more and more extensive, and the database system has become an essential tool and a powerful propellant for work in various industries. In addition to orderly and reliable development, it can also significantly improve management efficiency in various fields. The characteristics, advantages and application status of the computer database system used in information management are expounded, and the future development is prospected to promote the positive development of the industry.

## Keywords

Information management, data management, Computer database, software engineering.

## 1. Introduction

The computer database system refers to the use of computer language to realize the content storage, accurate structure and management of the database, the use of computer systems to achieve rapid retrieval and efficient processing of various information, and the scientific management of information based on data. The things that need to be collected and stored in the database are information data and information.

## 2. Development stage of computer databaset

Computer database management methods are constantly developing. So far, there have been three development stages: manual management stage, file system stage and database system stage.

### 2.1. Manual management phase

In the mid-1950s, the hardware and software of computers were immature, and there were still many things to be optimized. For example, the software lacked an operating system, and the hardware only had the function of storing tapes. At that time, the function of the computer was mainly calculation, and the management of data in the software system could not be realized. Therefore, when the programmer designed the program, in addition to ensuring the logical structure of the data, he also had to design the storage structure, access method, input/output physical structures such as patterns. If the storage device for the data is changed, the user program must be recreated. Since data is constructed for applications, data sharing between different computers cannot be achieved, and a large amount of redundant data exists between applications, resulting in that data integrity cannot be guaranteed. The characteristics of this stage are mainly reflected in the following aspects:

There is a lack of software that can realize data management on the computer.

Data organization is designed for applications, which can not realize data sharing and data redundancy.

Application of the specified data logical structure and physical structure. Data and programs is not independent of each other.

Data processing method - batch processing.

## 2.2. File system phase

A notable sign of this stage is that the computer has file management software to manage the database. From the mid-1950s to the mid-1960s, a large number of large-capacity storage devices emerged, which greatly promoted the development of software technology and opened up a new situation for data management. In the file system stage, the data is mostly decomposed into multiple files, which exist in the outside, and then are managed by the operating system, which is simple and easy to operate. manage. The operating interface of the operating system is very simple, which greatly reduces the difficulty for users to use files. In this system, the physical and logical structures of data and program files are independent of each other, not interdependent and inseparable, which can effectively ensure their independence.

The external memory is the storage location of data and programs, but the two are also stored separately, and each application program can share the data, however, the data is still organized based on the program, so it is not necessary to design a large amount of data at all. Furthermore, the logical structure of the data is not easily modified and extended. Because the files are separated from each other, the actual connection cannot be reflected, and the operating system cannot control the connection information between the files, so the content association between different files can only be handled by the application program.

## 2.3. Database system phase

Since the 1960s, computers have been widely promoted, and the application of computers has also been expanded in the field of data management. At the same time, higher requirements have been placed on data management technology. Enterprises and departments are required to avoid data redundancy as much as possible, maximize data sharing performance, and ensure the independence of data and programs.

In addition, it is necessary to ensure that the application can operate normally in the event of changes in the physical or logical structure of the data, and at the same time, application development and maintenance costs must be minimized. Database technology is developed according to these application requirements. Database technology has the following characteristics:

The data is redundant and easy to modify and expand. Each application can retrieve the required data from the database upon processing requests, reducing redundant data storage, easily adding new data structures, and maintaining data integrity.

Programs and data are very independent.

The maintenance interface is very good, so that users can easily develop and use the database. Through the centralized management and control of the data, provides data security, integrity, and concurrency control.

### 3. Application Characteristics and Advantages of Computer Database in Information Management

#### 3.1. Data and information are more independent and the utilization of information resources is more flexible

The application of computer database in information management business, on the one hand, makes the practicability of information resources play greater, and at the same time, the maintenance of data becomes more convenient. The reasons are as follows:

Due to the strong independence of the structure and logic of the computer database, the information in the computer database will not change due to changes in the overall structure, even if the main program is modified or the data is arbitrarily changed, or even the storage structure is modified, the computer data information. There will be no change in the logical structure.

Through management and storage, information can be freely input and output. As a result, employees who manage data information can start from their own work requirements, and the corresponding database has larger data information and is more flexible and easy to manage.

#### 3.2. Two or more

In the entire computer database system, a large amount of data information must be retrieved. The information serves as the source material and basis for the user to re-develop or create a database for use. In the information management work, the scientific data must be ensured, which requires ensuring that users can quickly obtain effective information after saving the information.

At present, the number and types of databases developed in all walks of life are very complete. In the information management of many enterprises, the number of databases is more, and the scientific processing of data not only enables people to quickly and effectively obtain user needs. As shown in Figure 1, but also is very beneficial to the development of databases.

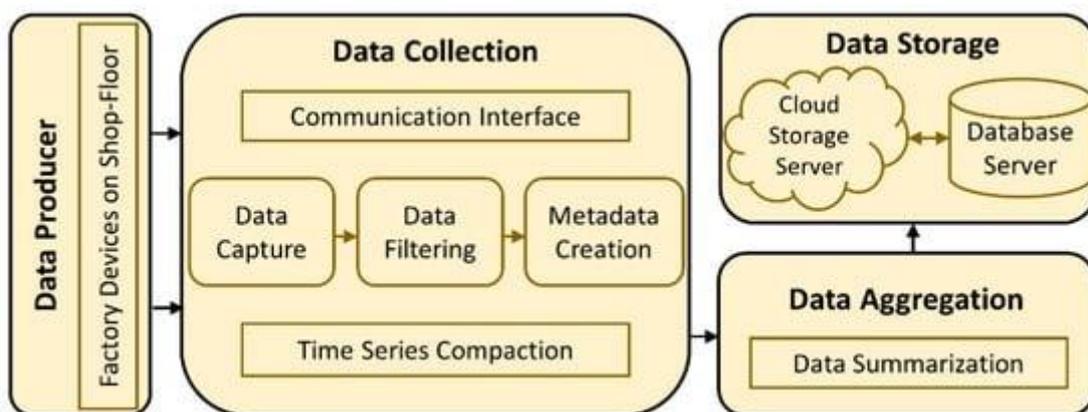


Figure 1. The data flow of the data management component under scientific processing.

#### 3.3. Sharing of data and information resources

When constructing the database for the first time, the designer's first consideration is the sharing of information resources and realizing the sharing of resources among various departments of a unit. The database solves the problem of resource sharing among various departments and units.

Now, users can easily share data information in different regions. The database is becoming more and more perfect in terms of information collection. It can not only realize the information sharing between different institutions in different regions, break through the restrictions of the country, but also realize the information exchange between different countries and families.

This function is related to the efficiency of information management. can achieve substantial improvement.

## **4. Application Status of Computer Database System in Information Management**

In recent years, the development of computer database system has made rapid progress, and its application in information management has become more and more extensive. At present, in agriculture, industry and service industries, computer database system has achieved a monopoly, and it is very important for China's first industry, second industry and so on. Industry and tertiary industry have achieved hegemony, therefore, the application of computer data system can be said to promote the development of all walks of life. At present, the application of computer database system is not only related to the smooth operation of information management, but also directly affects the development of industries and fields. The application characteristics of the current computer database system in information management are mainly reflected in the following aspects:

### **4.1. The development of computer database system**

The current computer database system has become a computer database system with greater adaptability after three stages of innovation to the target database. Having a strong adaptability is the basis for ensuring the smooth and orderly development of information management. In recent years, the practicability and operability of computer database system in information management business have become stronger and stronger.

### **4.2. The security of information management business is gradually improved**

At present, the security performance of the computer database system is gradually improving, which provides more guarantees for the development of information management. For information management work, all kinds of data are the basis of business management, so whether the computer database system is safe and how high is the security level are all issues worthy of attention of major enterprises. In this process, if the information of the enterprise is tampered with or leaked, it may cause huge losses to the enterprise. In recent years, the security of computer database system management information has become higher and higher, which is also the fundamental reason for its increasing number of users. The application security can be judged from the following two aspects:

#### **4.2.1 Whether information can be efficiently backed up and restored**

In the process of using the computer, the user will inevitably encounter failures such as computer blue screen or crash. In this case, such accidents such as loss of important files may reduce the user's sense of security, and then cause important files to be deleted. Wait for mistakes to make things irreversible. Therefore, the backup and file recovery functions of the computer database system are very important, and it is an effective guarantee for users to save data and work safely.

#### **4.2.2 Whether the software used by users and the websites they visit can be encrypted**

When accessing the Internet, users often face the risk of being hacked or attacked by viruses. At this time, the encryption function of the computer database system can not only significantly improve the security of information management, but also effectively protect the information of some software. The software is effectively protected during operation and realizes the barrier against malicious viruses. Greatly improve the reliability of information management operations.

### 4.3. Effectively ensure the integrity of database information

At present, the amount of information in various industries is increasing. In the case of promoting information administration, it is very necessary to build databases such as commodity inventory management. Databases, student basic information databases, product price statistics databases, etc. The application advantages in information management are gradually expanding, and there are more and more types. In addition, they are deeply loved by users. This requires continuous improvement and updating of various technologies in the database. The work of inputting raw data should also pay attention to the accuracy of quantity to ensure that users can use it. Authenticity of information in the process.

## 5. Conclusion

The development prospect of computer database system in management application program is very optimistic. At present, its application scope is expanding and gradually realizing fine differentiation, which greatly improves the productivity of information management business and has been highly recognized by people. In the future, the computer database system should strive to improve the security level of information and data and the availability of the system, ensure the authenticity of access data and information, and improve its practicability. Researchers and developers should try to simplify the application program to promote the better development of information management.

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