Analysis of Computer Software Engineering Database Programming Technology Based on Big Data

Yu Yang

New Media College, Sichuan Film and Television University, Chengdu, 611331, China

Abstract: Due to the use of database technology, various types of data information can be scientifically classified and quickly integrated, thereby greatly improving the overall utilization rate of information. In order to ensure the security of data information and enable various industries to make reasonable use of various types of information, it is necessary for relevant personnel to conduct further research on computer software engineering. From a technical perspective, meet the corresponding software application scenarios and technical requirements. At the same time, the arrival and development of the era of Big data have significantly changed people's lifestyle. Based on this, it is very necessary to base on the overall background of the Big data era in the process of specific software design. Therefore, this paper analyzes the database programming technology of computer software engineering based on Big data. In the context of the current Big data era, the database formed by massive data needs more maintenance through computer software engineering. Therefore, the service function of computer database should be improved based on the application of computer software engineering, so as to provide more convenience for users to carry out their work.

1. Introduction

Paying attention to the analysis of database programming technology based on computer software engineering is conducive to maintaining the good practical application effect of computer database, optimizing its programming mode and realizing the efficient use of programming technology. Database can effectively promote the intensification of management system and provide people with massive information services, but it has higher security requirements. Once the database is abnormal, it will lead to information leakage, so it needs to be solved by reasonable measures. Therefore, it is necessary to combine the actual situation of computer software engineering and the application advantages of database programming technology to realize the integration of the two. Because of the use of database technology, all kinds of data information can be scientifically classified and quickly integrated, so as to greatly improve the overall utilization rate of information[1]. In order to ensure the security of data and information, so that all industries can make rational use of all kinds of information, it is necessary for relevant personnel to further study computer software engineering [2]. In software engineering development, we should pay attention to the integration of big data technology, and focus on the specific development needs of the corresponding projects to meet the corresponding software application scenarios and technical requirements from a technical perspective [3]. With the continuous improvement of the national information technology level, software has been widely used in various fields. Through the rational application of software engineering and computer hardware platform, more and more software functions have been developed. At the same time, with the arrival and development of the era of big data, people's lifestyles have changed significantly [4]. Based on this, in the process of designing software, it is very necessary to take the overall background of the era of big data as the basis. Therefore, this paper analyzes the programming technology of computer software engineering database based on big data. Database performance optimization based on database programming technology can select a suitable programming language and make logical editing according to its own actual needs, write and realize the functional architecture setting of the database, and make functional distinction according to the utilization rate of each module, so as to improve the

utilization efficiency of database resources and meet its performance optimization requirements. The effective application of computer software engineering in database programming design can realize the safe operation of the database and improve the efficiency of database use. Especially in the current era of big data, the database formed by massive data needs to be maintained by computer software engineering. Therefore, the service function of computer database should be improved on the basis of the application of computer software engineering, thus providing more convenience for users' work [5].

2. Analysis of Database Establishment in Computer Software Engineering

2.1. Database system functional characteristics

The scientific storage and management of a large amount of information generated during production and business processes, and the security of information has always been a continuous concern for enterprises, playing a crucial role in their future sustainable development. At present, the security of information has been significantly improved, and firewall technology and encryption technology have ensured the quality of information transmission and utilization[6]. However, the protection of databases needs to be improved, which has become a topic that technical personnel need to further explore. Technicians need to master the system operation status, be able to judge the system operation status, analyze and study restrictive issues in the programming process and issues that occur when sending data, be able to optimize data control processes using data transmission information, and have the ability to improve system functionality and process data. In the process of establishing a database, it is necessary to evaluate the effectiveness of different components in their collaborative applications and handle possible influencing factors, so that the final database application based on computer software engineering can achieve the expected results [7].

2.2. Database establishment process

In the process of establishing a database based on computer software engineering, it is necessary to clarify its application direction, implement the corresponding research work, and consider the functions that need to be further improved on the basis of its basic framework design and combined with the actual situation, so that the database can maintain good functional characteristics [8]. When building a database, it is necessary to reasonably evaluate and analyze all kinds of different structural effects and combinations, and to ensure that computer software can make full use of the resources in the database so that the database can achieve the expected goal. Before designing the computer software engineering database, it is necessary to define the software design direction according to the actual needs, design the basic framework according to the specific situation, and gradually improve the software functions to ensure the good function of the database [9]. Reasonable design can improve the system's ability to deal with viruses and speed up the update of the database. If the basic equipment is damaged, it will affect the normal operation of the system, and it will also implicate the database, and some of the information may be damaged or lost, which will improve the security of information in the operation of computer software engineering, realize the effective response to network viruses, and speed up the update rate in the practical application of the database [10].

2.3. Actual situation of computer software engineering

Pay attention to the handling of technical issues in its establishment, and reduce the probability of technical issues occurring in database establishment through the coordination of different software functions. At the same time, it is necessary to pay attention to the efficient utilization of database resources in computer software engineering practice, and choose appropriate program assembly languages to provide more support for database establishment. For this reason, the effective application of database technology can make assembly language more reasonable, and the software itself can operate normally, thereby effectively reducing the probability of database technology problems under collaborative action, and continuously improving the overall utilization

rate of database information resources to the maximum extent. During software operation, it is necessary to carefully analyze the issues to be addressed and develop reasonable response measures to ensure the smooth operation of the software while promoting the stable operation of system information resources. We should actively explore the establishment of databases based on computer software engineering in the long-term practice process, making database establishment more scientific and laying the foundation for expanding the application range of programming technology.

3. Analysis of Computer Software Engineering Database Programming Technology Based on Big Data

3.1. Application of database performance optimization under the background of big data

In the era of big data, the total amount of data and the data entry rate have increased significantly compared with the past. When a large amount of data enters the system, it is necessary to store the corresponding data, and software engineering technology plays an indispensable role in this situation. Using the corresponding software to improve the data storage level and reduce the hardware storage pressure is the basis for ensuring the continuous and stable operation of the whole computer system under the background of big data. Database performance optimization based on database programming technology can select a suitable programming language and make logical editing according to its own actual needs, write and realize the functional architecture setting of the database, and make functional distinction according to the utilization rate of each module, so as to improve the utilization efficiency of database resources and meet its performance optimization requirements. Therefore, we must pay more attention to the latest research results of key technologies in software engineering, and relevant enterprises need to participate in the construction of innovation alliances and benefit sharing mechanisms, so as to ensure that the superior resources involved in key technologies in software engineering can give full play to their own advantages. Programming technicians should build the overall framework of the database in advance, then select the operation objects that meet the needs, complete the creation of database tables, and implement and fill other contents. The specific process is shown in Figure 1.
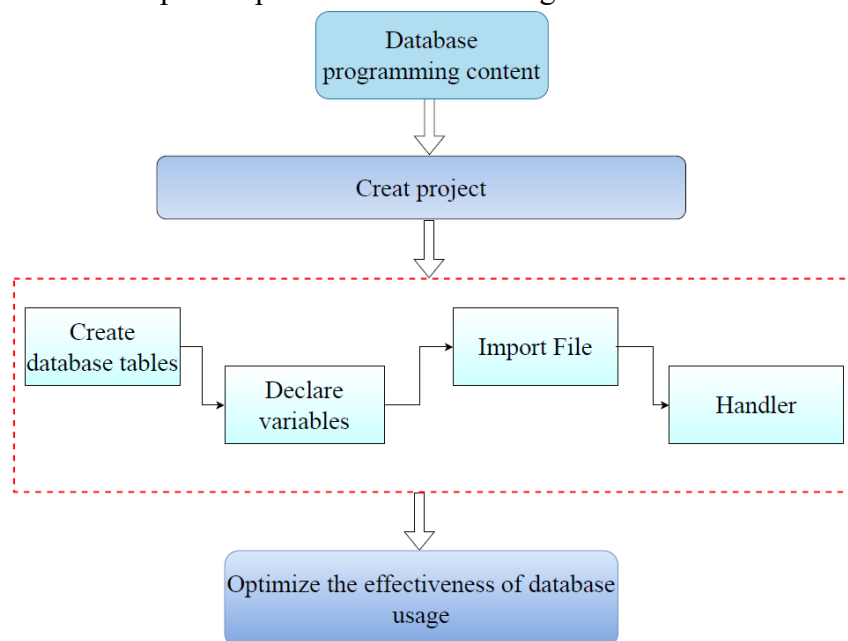

Figure 1 Database Programming Process

If the database belongs to a file type database, accessing it will have high operational efficiency and strong rationality. Therefore, in the process of using programming technology, attention should be paid to this point. At the same time, when designing, it is also necessary to determine the database information based on the type of information. Through the rational use of database

programming technology, the combination of database programming technology and partition construction method can be utilized based on the determination of database file types.

3.2. Comparison of types in practice in the context of Big data

At present, various types of data information include simple text and digital information, as well as numerous multimedia information, including audio and video information, and even some other software. Classifying and storing them not only plays a role in scientifically utilizing storage space, but also reduces the burden on the system to search for relevant content during data applications. After gradually establishing database file targets, the characteristics and advantages of database related software should be utilized. It is necessary to analyze the various functions and practical applications of the database based on actual needs, and track whether there is any problem of data loss during the file reading process. When similar situations arise, it is necessary to adopt an application type comparison approach to achieve efficient utilization of database programming technology based on computer software engineering, and to promptly address any issues that may arise during the file reading process. In order to effectively protect the personal privacy of users, it is necessary to encrypt database files to effectively protect them. Currently, the main methods of database file encryption are login passwords, facial recognition, etc., which can effectively avoid the problem of database file information leakage. Developing database file security design on the basis of computer software engineering can also make it more convenient for management personnel to carry out work and solve various problems that arise during encryption processing in a reasonable and orderly manner, thereby improving the security of the network environment and the effectiveness of software engineering technology applications. The content of the database file encryption module is shown in Figure 2.
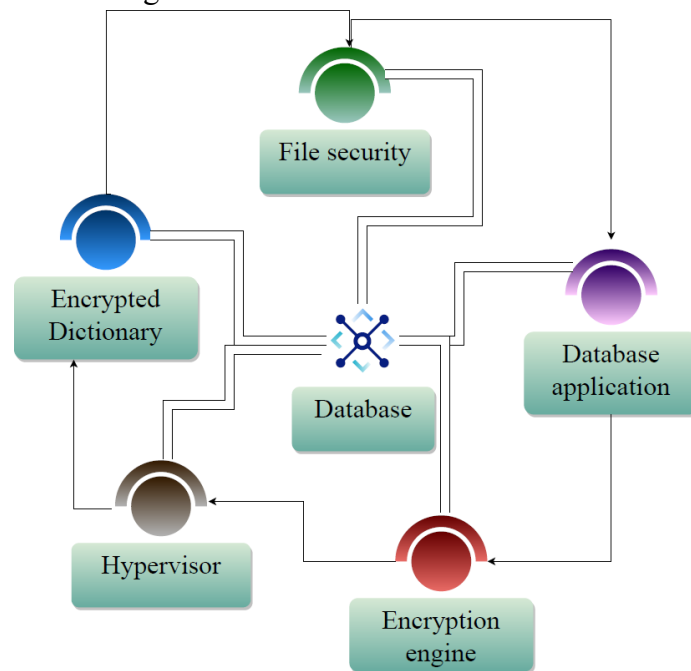

Figure 2 Database file encryption module

Database file security processing will not cause contradictions among various functions, even if there are contradictions, the software structure framework can be adjusted, so that the contradictions can be lifted. Through the rational use of differentiated resources, computer software can be used to effectively control all the data information received, and big data can also be used to allocate information, so as to realize the rational use of resources and make the database information more reliable. For specific enterprises, software upgrading should be promoted based on the application of key technologies of new software engineering, and the industrial structure should be optimized, so that the improvement of resource utilization can be better guaranteed. We should also carry out targeted market research to clarify the specific needs of various industries, so as to optimize the key

technologies of software engineering, ensure that they can better serve the optimization and upgrading of industrial structure, and cooperate with professional software engineering management teams to better change technologies in the era of private big data.

4. Conclusions

To sum up, with the continuous deepening of the influence of Big data, most enterprises in China have achieved more effective development, and their overall management quality has been greatly improved through the rational application of various key software engineering technologies. This paper analyzes the database programming technology of computer software engineering based on Big data. Relevant departments and technical personnel have vigorously improved the level of database programming technology in computer software engineering, ensuring the maximum utilization of database resources. After gradually establishing database file targets, the characteristics and advantages of database related software should be utilized. It is necessary to analyze the various functions and practical applications of the database based on actual needs, and track whether there is any problem of data loss during the file reading process. At the same time, they have effectively improved the reliability required for computer software operation, and conducted research on database programming technology based on computer software engineering. Users need to strengthen their awareness of data and information security, backup useful daily data and information, and avoid the inability to recover important data and information. In addition, users should strengthen their awareness of network security, pay attention to the daily prevention and control of Trojan viruses, prevent Trojan viruses through Antivirus software, and set up firewalls to improve the security of user data information.

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