Analysis of Database Programming Technology in Computer Software Engineering

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Abstract: This article analyzes the application value of database programming technology. Its application value includes improving practical effects, improving information security, and reducing the probability of technical problems. Combining the application characteristics of database programming technology, this paper studies the selection of database types, database establishment, database storage mode selection, file encryption protection, programming technology optimization selection, software and hardware system update design. The purpose of this article is to improve the application effect of database programming technology and improve the design level of computer software engineering.

1. Introduction
With the continuous development of the new era, the application scope of the database has become wider and wider. In the enterprise, it can establish an automated, quick-to-use, and simple-to-operate internal information processing system for the enterprise. Then, it collects and transmits information to the platform to further improve the efficiency of the enterprise. At the same time, the programming technology can carry out targeted file encryption processing to avoid the leakage of internal information of the enterprise and ensure the benefits of the enterprise. However, database programming technology needs to establish a software database based on specific requirements and analyze specific programming issues to ensure the stability and security of database software. This article analyzes the database programming technology of computer software engineerin. Besides, this paper provides valuable information data for production activities, and ensures the safety of data information in the database, thereby promoting the stable and harmonious development of society.

2. Application Value of Database Programming Technology

2.1. Improve Practical Effect
In the construction of computer software engineering, the basic construction content is to build the basic frame structure of the system. At the same time, relying on the network operating environment, application analysis is performed on the operating status of the database to improve the standardization of the entire application system. From the establishment of the database to the use, a lot of work is involved in the whole process. However, with the help of database programming technology, the entire use process can be supervised. As shown in Figure 1, after the user makes an application request, it will be directly uploaded to the application system. Subsequently, the required information is extracted from the database management system and fed back to the user to complete a data application cycle system. This also effectively improves the practical effect of the database, enables it to fulfill the expected requirements, and improves user service satisfaction.

2.2. Improve Information Security
In the context of the rapid increase in information acquisition channels, information security management has also become a very important application content. Moreover, in this process, relevant technical personnel should classify the data information that needs to be encrypted again, and set up different encryption processing methods, so as to further improve the information security. In the process of constructing computer software engineering framework, the establishment of database is a very basic application content. At the same time, relevant staff also need to continuously optimize its application effects according to the differences between the structure and functions, so as to improve the functional characteristics of the entire database. In addition, during the system update process, we also need to appropriately increase the update speed of database programming technology so that the functionality of its firewall can be greatly improved. For some new network viruses, firewalls can intercept and process them in a targeted manner to improve the security of the computer software engineering application stage, and improve the reliability of the data information application stage simultaneously [1].

Figure 1 Schematic Diagram of Database Operation
2.3. Reduce the Chance of Technical Problems

In software development projects, database programming technology accounts for a very large proportion. Moreover, in the actual application stage, we will also use other construction structures to carry out a systematic analysis of the actual operation of the system. Otherwise, combined with some technical issues, we should deal with them in a targeted manner to reduce the probability of technical problems and improve the application effect of the technology itself. In the specific application stage, we should also consider the scientific choice of programming languages. This not only guarantees the basic conditions of data information utilization, but also improves more possibilities for database applications. In addition, more than 60% of database programming technologies will add a self-updating system to the previous design. Combined with the current development trend, we are supposed to make targeted improvements to the advanced management technology in order to improve the orderliness of the technology application stage [2].

3. Application Characteristics of Database Programming Technology

3.1. Information Concealment

The programming technology of the database can hide some data information. For example, in the process of network communication connection, the NAT technology of the computer can hide the URL that the user is connected to on the network. However, what is displayed is public address access, which is the information hiding particularity of database programming technology. In an enterprise, the role of database programming technology is of great significance to enterprise network management. Computers can use the concealment of programming technology to directly access the computer network outside the company, and will not expose the information inside the company. Meanwhile, if an external computer wants to access the corporate internal network, it will be restricted by authority. This function can effectively improve the security of the internal information and data of the enterprise, prevent information leakage and ensure the information security of the enterprise [3].

3.2. Usability Characteristics

Compared with ordinary computer database systems, incorporating programming technology into it can increase system availability by 50%-65%, thereby increasing the application value of data stored in the system. In the operating phase of the database system, if there is a problem of uneven load in the transmission phase of the system, the self-checking ability of programming technology can be used to identify the fault in time. In addition, formulating corresponding treatment measures can effectively improve these application problems, which also further improves the stability of the system during operation. Moreover, in the main interface design link of computer software engineering, programming technology will improve the compatibility of the interface itself. At the same time, we also designed a backup interface to assist the main interface. This not only stabilizes the working environment of the database, but also improves the operating efficiency and application effect of the database system itself [4].

3.3. Identification Features

Except to the application features mentioned above, in the application stage of database programming technology, it also has a strong identity recognition feature. In the context of the era of big data, the application of database management systems is gradually popularizing, and more than 89.7% of large enterprises have established database management systems for their headquarters. However, more than 60.3% of small and medium-sized enterprises are also actively building database systems. In order to ensure the security of system operation and management, we need to verify the identity of visitors to avoid information leakage problems. In this process, the commonly used identification methods include dynamic verification codes, internal passwords and other methods. At the same time, with the port computer access feature for authentication, when the account password entered by the user is consistent with the reserved information in the database, the user can obtain the access authority, and
the password will also be stored in the TACACS server. This not only encrypts the password, but also avoids the appearance of malicious access problems [5].

4. The Design Points of Database Programming Technology

4.1. Database Type Screening
In the application stage of database programming technology, database type screening is a very basic work content, which is also a prerequisite for determining the value of database application. Firstly, when filtering data, we need to analyze the data types of the enterprise and check the proportions of different types of data to match different data ports and HTTP protocols, thereby improving the security of the data information transmission stage. Secondly, compare the reading methods of data information and find out the reading port that meets the actual application requirements. In addition, based on this, we can screen suitable file types to clearly and specifically classify the database to improve the reading efficiency of the file application stage. Thirdly, choose the storage method of the database. At present, the most widely used storage method is cloud storage. In practical applications, we also need to do a good job in calculating operational efficiency to improve the quality of the system itself [6].

4.2. Database Establishment
After completing the screening of the database application mode, we should start to build the database. When building it, our first task is to ensure the integrity of the database function. In this way, not only can all the parameter information be compatible, but it also needs to meet the basic requirements of the enterprise operation stage. In the context of the era of big data, more than 85.6% of enterprises will conduct data transmission in the form of data packets, which also means higher requirements for bandwidth and port-compatible processing performance. Moreover, in the application design process, we can also use partitioning to build database modules. In addition, the work content corresponding to each work module is also quite different [7]. After the database management system receives the user's application, we can use the network to match the corresponding module of the database, and complete the established tasks under the premise of overall cooperation. In addition, in the context of personalized requirements, we can also use custom installation to complete data processing according to the actual needs of users. This not only reduces the update speed of the database, but also facilitates the effective implementation of database software.

4.3. Database Storage Mode Selection
After completing the establishment of the database application structure, we need to optimize the database storage mode. In its application, we will also process user access permissions so that different people can be more targeted when accessing information. Moreover, some companies also classify users' own levels by setting application permissions. Users are generally divided into ordinary users, intermediate users, advanced users, etc. In order to show the difference in user levels, different users logging interfaces are different. Besides, advanced users also have priority rights during the visit, thereby increasing user service satisfaction by 15%-35%. At the same time, we also need to optimize the processing of access resources and integrate them into different application data packages. In the data transmission stage, we can handle the data with the help of functional application principles to stabilize the actual application effect of the system [8].

4.4. Encrypted File Protection
In the process of file encryption protection, we need to classify data information. For example, companies divide it into three categories: shared data, encrypted data, and confidential data. Shared data mainly refers to some corporate notifications, daily work data, etc. Therefore, we do not need to encrypt them. Encrypted data is some highly confidential data in an enterprise, such as financial data and departmental personnel arrangement data. Except to encrypting it, we also need to restrict access.
In addition, confidential data is the highest secret in the enterprise management process, such as some core technologies and core plans. These contents need to be further encrypted on the basis of the original encryption processing, and only the top management of the enterprise has the right to access it. When logging in to the access interface, we will also use the access authority to limit the personnel's right to know, thereby improving the effect of the system operation [9].

4.5. Programming Technology Optimization Selection

The choice of programming technology is generally determined based on the choice of software engineering. Objective analysis of the stability of software performance can match the corresponding programming technology and improve the reliability of the system's operating status. For some relatively tedious resource data, we also need to compare and analyze them. The content of the comparison includes problem feedback capability, data transmission capability, etc., so as to ensure the smooth progress of the software engineering system and improve the system's functional attributes by 10%-30%. When optimizing technology, its first task is to optimize the framework structure. At the same time, we are supposed to count the operating confidentiality of the system, optimize the HTTP protocol and data transmission port. Otherwise, we can use this to improve the reliability of the entire application system [10].

4.6. Software and Hardware System Update Design

In addition to the content mentioned above, the software and hardware system update design is also an important issue that needs to be paid attention to in the technology application stage. In the specific application design link, we need to make statistics on the advanced nature of the existing software and hardware systems. Then, use big data technology to store it. In this way, after a new software or hardware system appears, we can use the system to update it. Moreover, the original operating data will also be transmitted through this channel to ensure the integrity of the system storage information.

5. Conclusion

To sum up, in the design process of computer software engineering, database programming technology has very high application value. We can combine the application characteristics of database programming technology to analyze and design various engineering parameters in detail. On the one hand, it can improve the office quality and work efficiency of the enterprise. On the other hand, it has a positive meaning for improving the stability of the enterprise's work operation stage and improving the core competitiveness of the enterprise in the market.

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