Design and Analysis of Software Application Framework Based on Web and Database Algorithm

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ABSRTACT. *In order to solve the slow problem caused by the expanding data and requests, this paper designs a software application framework based on database algorithm. And the database calculation and web services are analyzed in detail. The method of Web socket data response processing is introduced at the same time of cache layer. This method can effectively improve the cache performance of database. In actual use, this framework design method is applied, and the cache performance is studied, then the cache performance is studied, and finally each layer in the database is realized. This method has a good effect on improving the cache performance of database, and it can also improve the response sensitivity of web software application and the performance of database.*

KEYWORDS: *Database, Web, Software application framework, Design*

1. Introduction

In the process of the continuous development of computer and network technology, more and more enterprises begin to use web to realize the design of application system. The current web application mainly includes the following characteristics: the structure of the system is more complex, the amount of information is larger, the transaction is more intensive, the function is more, the number of users is more, and so on. The current Web The development mode has been unable to meet the development needs of modern enterprise applications, the program's adaptability needs to be further improved in the use process, and the maintenance process is more difficult, the number of codes is relatively large, and the current IT assets cannot be retained, so it is necessary to realize the development of a new software application framework. Now researchers are trying to use traditional development methods and experience combined with modern technology design to ensure the normal development of software. Instead, they use a reasonable functional framework of software. All applications in the system are carried out in this framework. Software developers can run the system as long as they implement the code related to business logic. The non business logic of the software mainly includes the integration, architecture and public service functions of the system. In the overall system framework, it creates a framework for the application software, which can facilitate the use of the software, shorten the development cycle and improve the quality of the software. Based on this, this paper uses database algorithm to realize the design and development of web application framework.

2. Database Algorithm

At present, although there are various ways to integrate with data sources, middleware, federated database and data warehouse are the three most frequently used. Data warehouse refers to the data collection oriented to the main body. Generally, the application of data warehouse is to support management decision-making. The characteristics of data warehouse itself are to realize data integration, to provide some simple data access, to support data decision-making, and to process relatively simple, usually in a relatively simple system. Middleware is an independent service program, and it is mainly used in distributed software, through which the purpose of resource sharing can be achieved. General application middleware is very common. It is a kind of database integration algorithm with very invariable application. It realizes the integration of data from different data sources by using the local mode and global mode of data sources. The purpose of the federal database system is to realize data sharing, and the operation of the federal database is very independent compared with its data office. In addition, data transfer and sharing between databases need to be realized by adding and accessing each other's databases [1].

3. Database Design

Web software applications need to call data across multiple databases, so database design becomes a very important part of the whole system. After comparative analysis of different types of databases, this paper will choose the following ways to design the database: 1) select the appropriate fields. Three types of fields are used: long, binary and string, and the character point is replaced by string, and the date is replaced by long. 2) Select the language for defining and manipulating data. When selecting the definition of data language, because the system is in the initial stage, all databases can be established at the same time, so it is necessary to select different definition languages according to different databases; and because there is no uniform standard for databases, the language for operating data must be reasonably planned. The database designed in this paper is based on standard SQL language [2].

4. Software Application Framework Design

4.1 Software Framework Structure

The software application framework structure designed in this paper is based on Web and database algorithm, and in order to avoid the application system crash when there is a large amount of data, the web layer and data layer add a web cache layer on the basis of web, and use memory as the main access medium by using the web cache layer, which can improve the speed of reading and writing. And we need to design the main database and database server in the database layer. The purpose of designing the main database is to update the data cache and copy the database. Through the implementation of data reading and writing, then in the process of data updating, the web will transfer information to the cache layer, so that the web cache and the web can work together, so that the load rate of data in the web layer can be effectively reduced [3].

4.2 Frame Design

The service layer of the web software application framework in the database implements data monitoring through the two modules of webserver module and cache module, while the client layer uses Java as the web code to realize data request. In addition, it also includes many functions such as managing log, managing channel, publishing message and processing data. The purpose of listener is to realize the filtering of client request listening, and it also has many functions such as finding entity, returning information through database and calling cache. In order to realize the communication, the channel is built in the database, and the data processing is to realize the data processing of XML and JSON. The cache module in the framework has a cache pool, and the cache module can realize the cache function of components and configuration management. In addition, the existence of the buffer pool can also enable components to invoke the data to be accessed during the access process. After the service is fetch, the Key generated by the Hash algorithm will be calculated, and eventually the HasyKY will be generated, so that the purpose of accessing the cached data in different servers can be realized. The heartbeat packet in the framework is to avoid the situation that the data transmission stops during the process of transmission, because once the transmission stops, the connection request between the server and the client breaks. The management system in the application framework can realize the information and request management of the server and the client [4].

5. Implementation of the System

5.1 Realize the Customer Layer

In general, the struts framework is used to implement the client layer. The application architecture of struts web layer is open-source and free, and it has a good effect on improving the technical level of JSP, object-oriented and tag library. In addition, it can also reduce the time needed for developers to design and develop with MVC. According to JSP to realize the view part of struts, in addition to the standard tag library, you can also use the custom tag library in struts to map with each other through action, so that the purpose of user data encapsulation can be realized, and also has many other functions, such as form validation. The controller in struts contains action class, which is an important bridge to connect business logic and user requests, and it can also call the model to update the state of the model, so as to realize the application process. Action It is applied in a large system to act as an adapter between business logic processing and user request. The main function of

application is to distinguish request and business logic. In addition, struts has no model component, but it can effectively solve the problem of part m, because at present, struts has not yet solved the problem of customer layer There is a good solution, but the M part is the nebula state of the system, so it belongs to the web layer framework[5].

5.2 Implement the Service Layer

The service layer plays a very important role in the system framework. The existence of the service layer can realize the strategy for the purpose of javabran business logic. In the J2EE specification, javabran structure has a very detailed positioning. Javabran structure is mainly divided into visualization and non visualization. But in general, web applications use Java bran for non visualization. Compared with ordinary Java classes, javabran has no additional functions. If javabran is in a distributed large-scale application environment, it needs to be implemented by the developers themselves. However, if javabran is applied in a smaller project, it will be simpler, and it will also have a better running efficiency than ordinary Java classes. Without adding other application servers, the system can run normally [6].

5.3 Implement Data Layer

If you choose a separate data layer to solve the problem of data persistence in the web application architecture, the operations related to business data can be implemented in the data layer, such as data query, addition, modification and deletion, database access, etc [7]. Because the services in the data layer are abstract, in the process of data source change, database migration and structure change, only the data layer can be modified. The data layer is implemented by jbdc, which is the standard for Java to access database. Besides, it can also provide the upper interface for the system [8].

6. Conclusion

In order to effectively improve the data and requests in the process of expanding the corresponding slow problems, improve the performance of the database, we designed a software application framework based on the database algorithm. The algorithm and web service of the database are analyzed. Based on the cache layer, the performance of the database cache is further improved by using the processing method of Web data response. In the actual use process, this software application framework is used, and then the performance of its cache is studied. Finally, each layer of the system is implemented. The results show that this method can further improve the performance of database cache, and also can effectively improve the performance of database and the sensitivity of web software in the use process.

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