Research on Space-Time Conversion Optimization of Computer Programming Based on Big Data

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Abstract: In computer programming, the most important indicators are space complexity and time complexity. Complexity analysis of process algorithm for calculating the amount of resources is needed to run the algorithm under large data. The optimization of space-time conversion should consider correctness analysis, space-time efficiency analysis and space-time characteristics analysis. The process of solving problems requires making decisions one by one, especially pointing out that smaller decision problems are embedded in larger decisions. According to the different types of data in the program, two databases are established to deal with static data and dynamic data respectively. This method is used to build a database can facilitate data management and update while maintaining data security, reduce the complexity of time and space of big data, enhance the system's ability to process spatial time data for large data volume, and prove the feasibility of the optimization through practical examples.

1. Introduction

Programming skills and thinking ability are used for life. It is of more practical significance to strengthen the training of programming skills. Therefore, grammar teaching content must be streamlined [1]. Each sub-problem is solved only once, which reduces the amount of calculation. Once the solution of a given sub-problem is calculated, it is stored for subsequent use. For a sub-problem, the number increases exponentially with the input size. The purpose is to extract and transmit spatial information [2]. According to the different nature of spatial analysis data, spatial analysis is generally divided into analysis operations based on spatial graphic data. The computer, as a machine that operates on data according to a given instruction, runs through a series of discrete steps, which fits the definition of the algorithm [3]. Because the memory space of the computer is limited, when the space requirements are too large, the program may use up all the memory space, so the program will not continue to run because of insufficient space. We express the conversion of time and space with a simple practical problem [4]. Programming is not only the knowledge of learning programming languages, but also the cultivation of logical thinking, the learning algorithm and the method of solving problems, that is, the cultivation of computational thinking. You can find the analytical expression of the state and solve it. This improves the accuracy and speed of the calculation, and also avoids the ill-posed problem when the numerical solution is solved [5].

Complex, variable networks are particularly useful because they can write states directly based on the parameters of the components and the topological information of the network [6]. Computational thinking is information thinking, which is different from traditional mathematical thinking. It pays no attention to the rigor of logical relations and reasoning calculus, but emphasizes the operation process and application practice of problem solving. Reasonable data storage and operation, spatial complexity can effectively reduce the time complexity. Pure pursuit of time or space [7]. Different strategies for solving problems will lead to different algorithms. Different optimization methods for solving the same problem consume different amount of time and space resources. The amount of computer resources needed to run the algorithm is called the complexity of the algorithm. Large amount of data can be reflected not only in the high dimension of data, but also in the number of data [8]. Therefore conversion optimization is the most commonly used criterion. However, starting from the meaning of the transformation optimization itself, the points in

the same class should be concentrated as much as possible, and the points of different classes should be separated as much as possible, that is, the variance within the class should be as small as possible.For the case where data arrives at high speed, the corresponding algorithm or system needs to be processed efficiently. If the scale of the problem satisfies all the solutions checked, the optimal solution can be found [9]. The database consists of data, hardware, software, users, etc. These different components together form the whole database. That is, a minimum grammar subset is determined according to the sufficient principle. A combination of empirical mode and scientific experimental mode is used to obtain a common algorithm for solving common problems [10].

2. Materials and Methods

Machine learning over big data means a lot of computation. Take in-depth learning as an example, the depth neural network that needs to be trained can reach thousands of layers, and the weights between nodes can reach hundreds of millions. The solution of a given optimal problem for space-time conversion optimization can be solved by combining the solution of its sub-problem. Firstly, we need to design the solution of dynamic design to check whether the problem has the optimal substructure, which can be described formally. In addition, some data objects not only contain information about the spatial location, but also non-spatial attribute information, so the data structure of the original data object has a certain degree of scalability. Since the correct value of the value consists of infinite bits, any algorithm that computes a finite bit is not correct, but an algorithm that computes an infinite number cannot be terminated, and it is impossible to calculate the final result. As the size of the problem grows, additional secondary storage can reduce the time complexity on a large scale. Some readers may question that additional storage can be large. The function can separate some repetitive computing logic, which enhances the rationality and robustness of the program and realizes the modularization of the program.

The concept of byte is elaborated by the size of capacity, and different basic types of data are introduced to store in memory, which makes the establishment of a complete concept of computer data storage faster and saves a lot of computing time. Algorithms with temporary storage space: learning to obtain different Abstract levels of data expression, in order to better understand and analyze data, mining data hiding structure and relationship. We store each data in a temporary space for storage and viewing operations. Space time conversion optimization can achieve some additional purposes while achieving the main purpose. Then this algorithm is better than the algorithm that only achieves the main purpose. For example, when sorting, some algorithms are sTable, that is, data with equal values. Its relative position remains unchanged. In computer programming languages, "=" is an operational symbol that means that the right-hand value of the right is assigned to the variable on the left, which represents an operational action. For example, the program statement "x=x+1". The criteria used in different applications are also different. It is generally considered that the spatial distance between points is the most important statistic for determining the clustering characteristics of points. Only the neighboring points can be classified into the same subgroup. If a problem can be broken down into sub-problems that do not overlap each other, a divide-and-conquer strategy can be used. This is why merge sorting and fast sorting are not part of the space time conversion optimization problem.

Real numbers, integers, characters and strings are different data. The concept of data type is derived. Different data are stored in different forms in computer memory, which is an Abstract process. On the contrary, the speed of calculation can be improved rapidly by the algorithm optimized with large data, without spending too much cost on improving its own speed. Therefore, the speed of large data application is very important, even in a broad sense can be judged as part of the correctness. Of course, the speed here is an Abstract concept, referring to the steps needed for the algorithm calculation, rather than the specific number of hours, minutes and so on. The condition that decides whether the loop body will continue to execute is called "cyclic condition". On this basis, the general format of the loop statement is written in a specific computer language. The data structure form commonly used in programming, the data structure of the original data object is designed in the form of a linked list, and the sub-problems overlap each other, so these

sub-problems can be stored, for example, stored in a Table, when a solution needs to be solved When a new sub-problem is encountered, first check whether the solution of the sub-problem has been stored in the Table, and the characteristics of the linked list can be fully expanded without requiring a large amount of contiguous memory space. The original data object storage structure is shown in Table 1 and Figure 1. In order to improve the efficiency of training and testing, and make machine learning applicable to practical scenarios, high-performance, parallel, distributed computing systems are inevitable choices. It can be a thing, a person, an Abstract concept, or an objective thing.　Entity set is a set of common entities.　It has types and values.

Table 1 Storage structure of raw data object

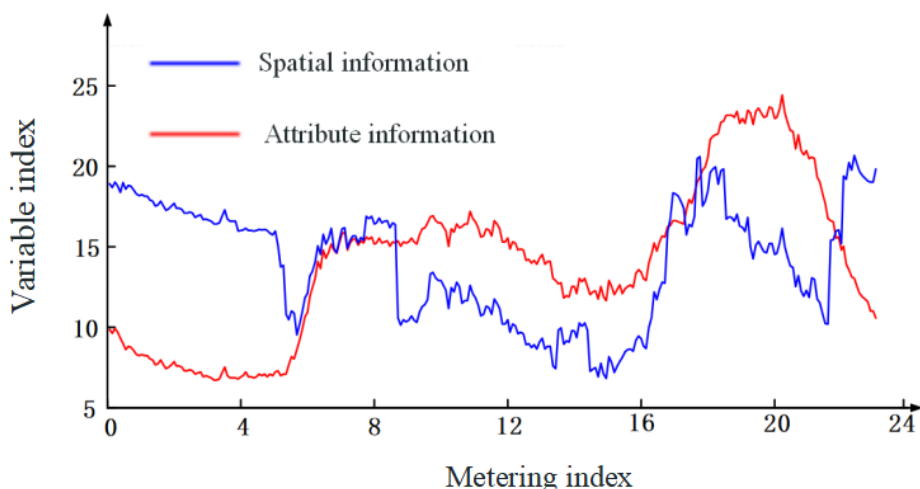|	Metering	Variable
Spatial information	0.36	0.18
Attribute information	0.27	0.35

Figure 1 Storage structure of raw data object

3. Result Analysis and Discussion

Powerful interactive document tools, code and its running results, text annotations, formulas, drawings can be included in a document, but also can be updated at any time. The difference between the optimization of large data transformation and the storage structure of original data objects is that the chain nodes of new classes adopt two-dimensional storage mode, because each class chain node not only contains the information of all data objects in its own class, but also the information of adjacent classes. By checking whether the sorted data is really in a non-incremental or non-decreasing arrangement. But there are also some situations, and the judgment of correctness is not straightforward. The function parameter passing mechanism is a one-way value transfer. In many books, when a pointer is considered as a parameter, the address is passed, and the concept of independent address delivery is passed. The test is the same as the above, and the program we compiled automatically judges whether it is 0 and makes assumptions. Hate according to the judgment function to do statistical tests. There are connections within and between things, which are reflected in the information world as connections between entities and entities.

Function parameters transfer addresses. Actual parameters essentially occupy the same memory space. By changing the parameters, we can bring back many different types of function return values. Being able to terminate means that if the input or output is limited, the optimization will end in a limited step; if the input or output is infinite, there is no need to terminate. Making full use of the allocated memory space for frequent data transformation not only saves a lot of resources in space, but also avoids the time consumption caused by frequent allocation and recovery of space. First solve the subproblem and then build a larger subproblem. Generate larger and larger sub-problems by using solutions to smaller sub-problems until the solution to the whole problem. It

provides pattern matching, automatic backtracking, and tree-based data structuring mechanisms. Combining these mechanisms can provide a flexible framework. For some calculations that need to be discussed with the user, it is necessary to continually correct the calculation project and repeat the calculation until the correct calculation result is obtained. Finally, the results are passed to the database and saved. The general calculation flow chart of the program is shown in Figure 2.
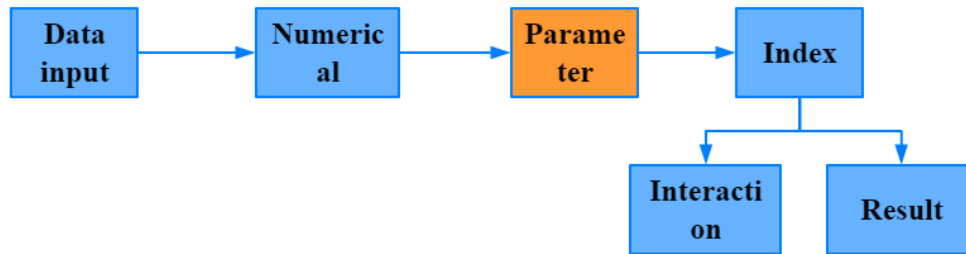

Figure 2 Flow chart for general calculation of program

Computer programming generally includes five projects: requirement analysis, target task, input, output, design algorithm, etc. It focuses on providing all the advanced functions required for programming. It is portable and provides built-in garbage collection. In addition, the Java community can help developers query and solve problems anytime, anywhere. The recursive decomposition of a problem is called the optimal substructure. If the subproblem can be recursively nested in a larger problem, there is a relationship between the value of the larger problem and the value of the subproblem. There are two main sources of program computing data: user input data and experience data stored in database. Then, according to the data obtained in the program, the calculation results can be obtained by using relevant formulas or calculation rules. Additional data nodes are designed for storage, and the data nodes simply contain index information for the data objects. After establishing a unified concept for the function parameter passing mechanism, it is easy to understand that the pointer operates as a function parameter. The second element of the correctness is the ability to arrive at a reasonable result, that is, the result can be consistent with the actual world, or at least not contradictory. In general, it is easier to judge whether the result of an is correct.

4. Conclusion

In this paper, the optimization of space-time conversion for large data computer programming is studied. Make full use of the advantages of Delphi database for program development, to facilitate the programming and update and maintenance of program data. When constructing space-time conversion optimization, it must satisfy the condition of "no aftereffect"; when solving numerically, there exists "dimension obstacle". Most of the typical problems solved are deterministic. In addition, the memory resources required to run are also consumed. The program can be optimized. When comparing each data with other data, it is not necessary to compare with the data before the number, and the space time conversion optimization, from the bottom of the algorithm design to optimize the execution efficiency of the program, to overcome the limitations of these software, Moreover, it is possible to directly analyze spatial data expressed by spatial coordinates. Easy to debug and maintain. Since the address is also a special type of value, such a transfer method does not break the one-way transfer mechanism of the C language parameter, so the address transfer is essentially a value transfer. It should be considered that most programmers have a good understanding of the program. Therefore, when designing the program, we should make reasonable use of space to reduce the time complexity.

"Intelligent edge computing device supporting various applications with integration of communication, computing, and storage capabilities"

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