Development and Application Research of Big Data Mining Technology Based on Computer Technology

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Abstract. With the continuous development of the society, there are a lot of data information in various industries need statistical research. By using computer technology, a large number of data can be mined and developed effectively. This paper firstly explains the important role of computer software technology in the era of big data and its development in China. At the same time, it studies the development of computer data mining technology and the application of computer software technology in the era of big data for readers' reference.

Keywords: Computer Technology, Big Data, Statistical Research, Visualization

1. Introduction
The continuous development of information technology has brought great convenience to people's life style. In the process of enterprise information processing, the application of computer technology to the mining and development of big data can effectively improve the utilization rate of data, ensure accurate data processing, and improve the efficiency of enterprise data processing.

2. The important role of computer software technology in the era of big data and its domestic development

2.1. The importance of computer software technology in the era of big data
Now the overall economic structure of the society is gradually transforming, and compared with the previous production mode, computer software technology integration production mode can obtain higher production efficiency, can create greater economic benefits, computer software technology is one of the important factors to promote the progress of modern society and economy. However, how to effectively apply and integrate computer software technology in the practical production and application of business scope and production scope is also one of the important issues for enterprises to strengthen their core competitiveness in the increasingly fierce market competition. In addition, in the era of modern big data, computer software technology is becoming more and more important in all walks of life. According to the relevant authoritative survey results, the total data stored in the world database reaches 1.8ZB, and the data produced and stored per capita reaches 200GB [1-2]. Computer software technology research, these data extraction of practical procedures, such as to be able to calculate important data contains enormous commercial benefit, for the development of various fields...
to provide precise and clear the development direction, the maximum to promote commercial industry and the rapid development of the industry, can trigger a new wave of social productivity surge in the situation.

2.2. Domestic development of computer software technology in the era of big data
With the gradual popularization and wide application of computer software technology, its application in the commercial industry, production industry and all walks of life is its gradual realization of the great value of computer software technology and its obvious role in the work practice. At this time, computer software technology in all walks of life in the degree of concern is also growing. At present, various industries, organizations and even government agencies are building or docking corresponding software and building their own databases. Under the big data mode, network and software technologies are used to collect data related to themselves and build corresponding data models. On the one hand, it provides conditions for its long-term development, and also points out its development direction with data and facts. On the other hand, it can also greatly improve the pertinence of the operation of corresponding institutions, improve the pertinence of services, and improve the convenience of people's life.

In the era of big data environment, the core work direction and content of computer software technology means that through research and extraction of huge data, massive commercial value and data with huge value are selected and summarized to determine the detailed direction and strengthen the production efficiency. For example, an enterprise makes use of computer software technology to complete the analysis of the user's purchase record, commodity browsing record, consumption ability and hidden consumption intention to calculate the goods with a high probability of purchase, and uses the sales staff to expand the promotion of such goods, so as to strengthen the sales efficiency and corporate interests. The advent of the era of big data promotes the emergence of the new trend of the overall productivity of the society, expands the influence and value of computer software technology, maximally strengthens the overall productivity of the society, and promotes the comprehensive development of the society.

3. Development of computer data mining technology

3.1. Traditional statistical methods
There are many traditional statistical methods, such as sampling technique, multivariate statistical analysis and statistical prediction. These methods are all traditional statistical methods. Among them, sampling technology is mainly to extract some information from the data as sample data. This can reduce the amount of data analysis to a certain extent. The main object of multivariate statistical analysis is the data and factors with complex structure and higher dimension. For prediction analysis, there are two kinds of prediction analysis methods, namely sequence analysis and regression analysis.

3.2 Visualization Technology
In the use of computers, through the reasonable use of data mining technology, can be in the shortest time to get the required data results. However, in general, in order to effectively discover the features with implicit properties from these data, appropriate methods must be used, such as charts, scatter plots and so on. In this way, the data can be presented in an intuitive form (Figure 1 Information visualization technology).
3.3. On-line analytical processing
In practice, lap is mainly applied to the analysis of multidimensional data. In the specific analysis process, many users are required to actively participate in and cooperate with this. In addition, users should also be able to focus on the corresponding analysis and screening of the analysis algorithm, so as to better explore the data (Figure 2 online analysis and processing).

3.4. the decision tree
As we all know, the basis of decision tree itself is rule-based and its main function is to classify and predict relevant data. In the decision tree, it contains many algorithms, including: SLIQ, SPRINT, CHAID, ID3, etc. In this, the two algorithms, SLIQ and SPRINT, can handle classification attributes and continuity attributes [5].

3.5. Computer neural network
The computer neural network is the product of using computer technology to simulate the neural network after the in-depth study of human neurons in the statistical reference medical field. In practice, a computer neural network has three layers: input, output and processing units. The development of this technology can help relevant personnel to effectively adjust and accurately calculate the data.

4. Application of computer software technology in the era of big data
4.1. Virtual computer and virtual platform
With the development and application of cloud computing technology, computer configuration has been optimized constantly, and the corresponding resource utilization efficiency has been greatly improved, greatly reducing the need for storage space. This technology has profoundly changed the computer deployment mode of the traditional IT industry [6]. In the era of big data, any architecture at the physical infrastructure level can be virtualized. With the adoption of distributed computing and parallel computing technologies, the corresponding software can be run not only in the virtual hardware platform, but also in the traditional physical infrastructure platform.

At present, the development of virtualization technology, about the computer related hardware facilities can achieve virtualization applications, such as desktop virtualization, storage virtualization, network virtualization and server virtualization. The core of cloud computing is data center. With the
continuous development of cloud computing technology, traditional data center is also developing towards virtualized data center. For example, the cloud server launched by Tencent Cloud, compared with the last generation of cloud server, its data computing and analysis capabilities have been greatly improved, and the degree of virtualization application is also higher. In this cloud server, it is equipped with more powerful hardware. Through the virtualization platform, it can provide better cloud services and effectively reduce the capital cost of virtualized resources.

4.2. Information security technology for computer storage and communication

With the continuous development of information technology, computer software technology has been widely used in people's production and life, the scale of software users is expanding, people pay more and more attention to the corresponding information security of computer software. Under the background of big data, computer software technology application process, the corresponding information data and everyone is becoming more and more closely linked, any changes in the data and information, can cause a lot of data and even the overall situation change, data security issues a big impact on the normal running of the whole data.

Therefore, we should realize the importance of data and information security, strengthen the research on information security technology, and fully guarantee the security of computer data and information. Common problems in computer network information security include network virus invasion, information leakage and information theft, etc. In order to effectively prevent these security problems, research on information protection technology should be strengthened (Figure 3 is the big data security shield).

![Big data Security Shield](image)

**Figure 3.** Big data Security Shield

4.3. Cloud storage technology

In the era of big data, with the continuous development of Internet of Things technology, the amount of data is becoming larger and the difficulty of data storage is increasing. Usually, the data information is stored in the local drive disk of the computer, but with the increasing of the data information, the traditional computer storage technology has been difficult to meet the current demand of data information storage. According to the supply survey, in various industries, more than half of the total data volume belongs to unstructured data volume. In the storage field, unstructured data content usually accounts for more than 75% of the total storage space.

In addition, a large amount of data storage with large storage costs, these costs are often occupied large proportion of many enterprises hard costs, and a lot of data and information has certain storage period, especially the large amount of historical data, after a period of time, the corresponding hit rate is extremely low, can use value also becomes very low, the data storage is caused serious waste of storage space.

Compared with traditional storage technology, cloud storage technology can effectively solve many disadvantages of traditional storage method, and the adoption of cloud storage method has been committed to improve data security and prevent hackers and has committed over 62 attacks, aiming to better protect the integrity and security of data information.
5. Conclusion
To sum up, in the process of big data mining development, enterprises can effectively improve their information processing capacity through the use of computer technology, and mining and analyzing the content of data information. Enterprises can reduce risks when making decisions and improve their economic benefits. Therefore, using computer technology to process information will be the future trend of information processing development.

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