A Primary Exploration into the Application of Computer Software Technology in the Era of Big Data

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Abstract: With the development of network technology and information technology, computer technology has exerted a far-reaching influence on national economy and people's daily life. Especially in the era of big data, which is inundated with all kinds of information, computer technology has achieved an even broader stage for development. With increasingly wide application of computer technology, how to apply computer software technology in a correct way has become the focus of existing studies. For this reason, this paper intends to analyze the application of computer software technology in the era of big data, to serve as a reference.

Introduction

With the extensive use of computer technology, the operation mode and management mode of various fields have changed correspondingly, and the complexity and diversity of data types generated by various industries have gradually increased, which poses an unprecedented challenge to big data processing technology. In the era of big data, all kinds of fields should develop computer software technology vigorously, improve the information processing ability and intensify resource integration, to facilitate enterprises to move towards normalization and standardization.

The Definition of the Era of Big Data

Generally speaking, data larger than 10TB or 1PB are called big data. Big data have become an important product of the development of information era. Big data have a huge size and they cannot be extracted, analyzed, processed and managed with conventional software. So in the current society, it is necessary to constantly improve the computer software technology and enhance the processing efficiency of big data.

The Status Quo of Computer Software Technology

After the reform and opening up, the computer software technology in China has grown quickly and been applied in multiple fields. The advantages of computer software technology including: first of all, it can set up a complete database and data storage system, to offer more professional information and data to users, and improve convenience for users to search information. Secondly, combined with cloud computing, the efficiency of information and data processing can be significantly improved and satisfy information demands of the era of big data. Finally, the application of computer software technology can increase social and economic benefits, and with the deepening of reform, its advantages in all kinds of fields will become increasing prominent, and lay a solid foundation for the future development of China.

Computer Software Technology in the Era of Big Data

In the era of big data, information and data are managed in a standardized way. While providing people with convenient data services, it also elevates the overall level of production and life. In the context of big data, the most commonly-used computer software technologies are:

Virtual Technology. Virtual technology is an important product of the era of big data, which plays a role in promoting the internal management and resource integration of enterprises. For example, the internal data of enterprises can be optimized by virtual technology. According to the existing situation, these data can be integrated, to realize the scientific allocation of internal resources and increase the utilization rate of existing resources of enterprises. At the same time, through the application of virtual technology, employees can also accelerate the processing of daily information and data, establish a perfect database system to offer more high-quality and efficient services to users with and attract more users to the enterprises.

Thirdly, by giving play to the advancement of virtual reality technology, we can update databases and guarantee that the system management information is in sync with actual work information, thereby expediting the development of big data technology, further expanding the service scope of computer software system, and deepening the exploration into the whole virtual technology. For example, by applying 3D virtual technology to daily work, we can build 3D models by means of computer graphic technology, 3D technology, graphics, programming, and video processing technology, simulate changes in people's sensations and postures and create a true virtual space, so that employees can carry out relevant operations within this space, reduce error rate in actual operation and improve their overall abilities.

Cloud Storage Technology. Today, cloud storage technology has been used by many enterprises. Depending on its advantages such as large storage space and high management efficiency, enterprise can optimize their level of data management. In the era of big data, the performance of cloud storage technology is further expanded. Not only the constraints in the original application of technology are solved reasonably, but also the efficiency of information management is improved, which offers convenience for the search and download of information by users.

Cloud storage technology is mainly applied in four aspects, that is, virtual storage, data storage, encryption technology and network surveillance. And virtual storage is mainly composed of four parts, client side, management server, cloud data server and object storage nodes. Through the application of a distributed cloud storage mode, the data can be virtualized and the safety factor of data can be increased.

Data storage is a way to manage data by combining cloud storage technology with virtual technology. In most cases, what are managed and monitored are data in the network center and resource center. For example, in the storage of private files, by using this module, we can effectively enhance the security and reliability of information storage, reduce the space occupied by data and mitigate the impact on system operation.

Encryption technology, as the name suggests, is a kind of technology used to encrypt data and ensure the security of data. Through the application of cloud storage technology, the encrypted data can be backed up in real time and operated in a remote way. So when a wrong operation occurs, the data can be restored in time through the file backed up, and subsequent work can go on smoothly. On the other hand, the application of cloud storage technology also improves the efficiency of space service and remote backup and plays an positive role in the improvement of the efficacy of data management.

In network surveillance, cloud storage technology can realize large-scale monitoring and management and transmit collected data to designated positions in the form of real-time video, so that the staff can understand the situation of the surveiled area in a timely manner and improve the level of management. Using cameras, encoders and other front-end devices, operators can refine the video surveillance system, connect the cloud storage system with the access network using access links and observe images on videos, to keep informed on system data management from time to time. The video surveillance management software can be used to capture images, so that the staff can watch the images and control remotely.

Information Security Technology. In the era of big data, computer software technology has grown rapidly and been applied in many fields effectively. Through the application of big data technology and computer software technology, for one thing, the information processing ability of enterprises can be enhanced, to help the enterprises better grasp the work of employees, and for

another, the efficiency of data identification and analysis can be enhanced, malicious information can be identified promptly and the data security can be maintained

In daily life and production, the rational use of information security technology has brought great convenience to people's life and work and satisfied their personal demands. In addition, the use of computer software technology also gradually promotes the research and development of products, keeps the staff informed of the customers' consumption demands in real time, enable them to grasp the consumption habits of customers with different identities, facilitate the perfection of product functions and enhance the competitiveness of products. Besides, the use of big data technology and computer software technology also strengthens the protection of the security of information network, guard against and control malicious attacks and virus attacks in time scientifically and effectively, thereby increasing the safety factor of information and data, improve the authenticity of information and data and enhance the working efficiency.

On the other hand, the establishment and perfection of databases also allow employees to understand the marketing and inventory of products timely and accurately, and then adjust and optimize their marketing plans according to the development demands of enterprises, to improve the economic level of these enterprises. The application of computer software technology also offer support for the identification of managers and the construction of a perfect encryption system, to further achieve the all-round protection of internal information and reduce the risk factors in operation. Simultaneously, this technology can also constantly develop the system functions, make them involved in a variety of industries, protect the security of information, avoid hidden danger in information during work and prevent the leakage of information.

The Application of Computer Software Technology in the Era of Big Data

Information Communication. The application of computer software in information communication is mainly by analyzing and grasping customer information using prediction and analysis techniques and grasping the real demands of customers, to offer data support for the subsequent management and policy-making of enterprises, help them judge the directions of marketing and development accurately and work out reasonable marketing plans to enhance customers' satisfaction and promote their own sound development. For example, the staff can extract and analyze customer information by using computer software technology, and draw up scientific cooperation plans, to offer correct guidance to the development of enterprises.

Business Operation. Computer software has been applied in the business field for a long time. It plays a crucial role in the optimization of technical level in business field and the improvement of the working efficiency of employees. Through the use of computer software technology, the work tasks of employees can be divided in a scientific way to give better play to the potential of employees, improve the work quality and promote the progress and development of the enterprises.

For example, in a given zoo, computer software technology is fully utilized in the management process and a perfect information sharing platform is set up using mobile communication and IPAD. The managers can be informed of the business information and demands of the tourists, by collecting, sorting and analyzing information in the platform, thereby offering targeted services and improving the service quality. In the current society, the competitions between enterprises of the same type are increasing fierce, and the competitive edges of the enterprises, to a certain degree, depend on their service quality. Better service quality obviously needs to be backed by science and technology. Thus it can be seen that the development and progress of computer technology plays a vital role in the enhancement of the market competitiveness of enterprises.

To take an example, e-commerce platforms that people often use, such as T-mall and Jingdong can learn about users' demands, by referring to their browse information and transaction records, using computer software technology, thereby automatically pushing relevant content and campaigns to users. In doing so, not only the users' demands can be satisfied, but also the service effect of platforms can be strengthened and their transaction volume can be increased.

The Application in Enterprise Information Solutions. In enterprise information management, computer software technology can be used to work up scientific management plans through analysis and management in multiple aspects, to fully exert the functions and advantages of computer software technology, achieve information integration, and guarantee that various jobs of the enterprise go on wheels. On the other hand, computer software can also lower the operation risk of enterprises in some way and intensify the management of customer information. The specific steps are as follows:

Step 1: To sample. Part of the overall data are selected as research samples, and the sample data are analyzed with the help of computer software technology, to predict problems that may arise and take prevention and control measures accordingly. In the selection of samples, we should not only control the sample size, but also make them representative, so as to improve the reliability of results.

Step 2: To research and integrate. Different types of studies are combined as a whole, to find out specific connection among them, improve the acquisition efficiency of customer information and minimize the waste of time.

Step 3: To modify and supplement. This step requires build a corresponding virtual model to strengthen the accuracy and effectiveness of data revision by modifying the model and provide a reliable data support for the adjustment of plans.

Step 4: To model. On the prediction of future trend, we can input existing data into a computer software system, to build a model, check and adjust the problems therein, reduce the production errors, improve the production efficiency of enterprises and push the enterprises forward.

Step 5: To evaluate. The evaluation should be done on the model, too. The data should be updated to improvement the accuracy of evaluation results. After the evaluation, the staff should carry out tests, to identify the effect on production, refine the problematic process, develop a sound correct report and offer favorable support for the enterprises.

The Application in Information-based Teaching. Computer technology plays an irreplaceable role in education and teaching in the era of big data. Compared with the traditional monotonous and rigid teaching mode, information-based teaching creates an online teaching environment, and realizes a teaching mode that integrates both online and offline, break the limitation of traditional teaching methods in time and space, expand and supplement the teaching content through computer network, expand students' horizon and improve the teaching quality. Moreover, the application of computer software technology in education and teaching can also mobilize students' learning initiative and stimulate their learning enthusiasm.

For example, while teaching knowledge of mathematical geometry, teachers can make abstract knowledge of geometry concrete and make dull knowledge vivid using computer technology, so that the students' learning initiative can be mobilized. Taking information-based Chinese teaching as an example, while explaining the lesson *The Peach Blossom Land*, the teacher can first ask the students to preview the text using computer technology and understand the creation background of the text and the author's basic information, so that they can gain a better understanding of the text. Later, in classroom teaching, the teacher can present the text content in front of the students visually using video and pictures, etc., to deepen their experience and stimulate their interest in learning. Based on the understanding of the text, the teacher analyzes the central idea and emotional changes in the text, to optimize the students' learning. In this process, students can cultivate the consciousness of self-directed learning, which is of great help for their future learning and development.

What is more, using Sojump and other software, teachers can also ask students to finish tests in class or through cell phones and other mobile media after class, analyze and compare relevant data, according to the test performance of students, so that students can understand their own test performance more accurately, the teachers can have a more detailed and accurate control of the test performance of whole class and clarify difficult and important points in course teaching.

Summary

From the above, we can see that in the era of big data, computer software technology has been widely applied in various fields and offered impetus and guarantee to the development of various fields. It is believed that with the improvement of science and technology, the application scope of computer software technology will be further expanded and computer software technology will contribute to the continuous progress and the increase of economic benefits of various fields and finally push the society to make constant progress.

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