Application of software engineering technology in the era of big data

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Abstract: the advent of the information age has promoted innovative changes in the development of all areas of social life, and the birth of big data analysis technology has further magnified this change. Big data improves the data processing ability and application efficiency of software technology. In this paper, combined with big data analysis, software engineering technology innovation and development are facing new opportunities and challenges.

Keywords: big data; Software engineering; application research

From the perspective of specific functions, the purpose of big data analysis technology is to comprehensively collect, analyze and integrate the data information of the target database, process and update the data information with the help of intelligent algorithms, and then mine the data characteristics and laws. From the perspective of computer, the application of big data analysis technology can optimize the computer software system and information system, make the classification of data information more detailed and convenient, and can also be used to classify highly similar data. According to this feature, the deep integration of big data analysis technology and Internet technology can effectively promote the innovation and development of software engineering technology. The two promote each other and complement each other. If software engineering technology can be effectively combined with big data and analysis technology, it can achieve great development advantages, and the design, development and application of software will make better progress.

1. The positive impact of big data on software technology

1.1 Efficient data comparison after software update

According to the current development status of software technology, the software update speed is fast, and the development requirements are different, mainly due to the different needs of different users in different periods. The introduction of big data can further support the development of software engineering and further meet the development needs of software engineering. Big data can not only help upgrade and update similar software, but also support the software to compare the data and functions before and after the upgrade. With the support of big data, the optimization and upgrading speed of software engineering is further accelerated.

1.2 Indicate the demand direction of software development

In the previous software development process, market demand survey usually used the method of market field survey, and then analyzed the actual needs of users, enterprises and other groups according to the corresponding survey data. This process not only required more human, material and financial resources, but also spent a lot of time and energy, which was high cost and low efficiency. Applying big data technology to software development can make use of big data mining and data analysis technology to comprehensively analyze the data received from multiple channels in a short time, so as to more accurately grasp the market demand and improve the applicability of the software.

1.3 There is a need for multifunctional software

By analyzing the development law of big data technology, it is found that big data needs to be based on software and system in the actual development and application process, and its integration with software production and application just supports its further development. Through the joint action of the two, it creates a more comfortable and intelligent development space, It can also further stimulate people's demand for big data software and systems, and this diversified demand has spawned more software development and promoted the continuous development of software engineering technology.

2. Three key technologies of software production in the era of big data

2.1 Crowdsourcing software service design

Crowdsourcing software service design has many service objects, including operation management platform and other management platforms. In the context of big data, crowdsourcing software service design reflects very obvious characteristics of maintainability and applicability. In particular, business entities will generate a large amount of data in their own practical applications, but the information is very fragmented on the whole, which brings great challenges to enterprises in data processing and analysis. With the help of crowdsourcing service software, it can quickly sort out and process data in a short time, and provide corresponding data demand services for enterprises. At the same time, in the process of crowded software service design and application, the corresponding work orders can be entered in advance to realize the information sharing between application objects, improve work efficiency and simplify the work process. Crowdsourcing software service is actually to analyze the professional theory applied by each subject, so it has great reference value, but this does not mean that it can be completely copied, but it should be combined with external changes and based on analysis.

2.2 Software service design technology

Software service design can meet the application needs of companies, units and other social entities. With the development of today's society, more and more enterprises begin to use the Internet to carry out business activities in the process of production and operation, in order to improve work efficiency. However, when there are security problems in the network environment, viruses, Trojans and other

illegal intrusions into enterprise domain names are common, which aggravates the network security problems. In this context, the demand of different groups for software service design is increasing. It can be seen that the most important thing of software service planning is to ensure the overall security of LAN computer system and software, so that the software used by different groups can be integrated and play a role. In the application of software service design, this is mainly accomplished through software development and configuration. The main method is to set up a protection and management system in the application software to resist the attack of external viruses. In addition, according to the current software service design applications, users can also modify settings according to their actual needs.

2.3 Research technology of intensive data

In 2007, the "fourth paradigm" of intensive data research was first proposed, and then it was gradually developed and recognized in application practice, and was also paid attention to in software engineering research. At this time, according to the analysis results of the first, second and third paradigms, it is found that they show certain incompatibility, which seriously affects the preservation of some use data, resulting in incomplete data, and directly causing problems such as indirect software applications. In contrast, the fourth paradigm has more advantages in this respect: it can record data completely and timely, provide guarantee for data analysis, and effectively improve the scientificity of data. On the basis of big data, in the practical application of the fourth paradigm, it should be noted that in the research work in the field of intensive data integration services, multiple levels and groups must cooperate to better obtain their own interests from the research work. Carry out better scientific analysis and make data analysis more systematic.

3. Application of software engineering technology in the era of big data

3.1 Data information collection

In the era of big data, any unit and organization will produce a large amount of data, which has a crucial impact on the future development decisions or real-time work content of enterprises or related units. Therefore, the importance of data collection is increasing. The collection of data information needs to rely on the software system. The software system needs to scientifically sort out these data, distinguish useful information from useless information, and avoid excessive occupation of information channels by useless data. In addition, the system design also needs to analyze how to analyze the user's actual application scenarios and use requirements, so as to avoid collecting massive data, resulting in excessive redundant data in the system and reducing the overall processing efficiency of the software.

3.2 Data information storage

In the context of big data, the total amount of data and the speed of data generation are increasing. After data enters the software system, the system needs to store it. In terms of data information storage, software engineering plays an indispensable role. It is necessary to optimize the software system to improve the level of data storage and reduce the pressure of hardware storage, This is the basis for ensuring the continuous and stable operation of the whole computer system in the context of big data. The application of software engineering technology is of great significance for the scientific planning of hardware and virtual storage space in the state of massive data. The software system can classify and store the incoming data information, which is a very critical step. And there are many types of data information, including text, digital, multimedia audio-visual information, and other software. Classified storage of data can make scientific use of storage space, and reduce the burden of the system on data search and application processing. In addition, cloud storage is also an important tool for storage. In the era of big data, data is no longer generated all the time. If we leave the cloud storage technology and only rely on software system to store data, the whole computer system will be paralyzed. Therefore, cloud storage has become one of the indispensable key technologies nowadays. Theoretically, if the cloud storage mode can be stably used for information storage, the requirements for computer hardware storage devices will be reduced in data processing. Cloud storage reduces the pressure of hardware storage and releases a large amount of computer storage space, which also plays an important role in ensuring the smooth operation of the system. The application prospect of software engineering technology in cloud storage is very broad, especially in the current situation of increasing pressure on information storage in various industries, people's demand for cloud storage will be higher and higher in the future.

3.3 Application of information security technology

In the era of big data, the collection, sorting and storage of massive data and information based on software engineering technology has become more convenient and greatly improved work efficiency. However, in the face of massive data and information resources, it is inevitable that there will be certain associations between the data. These associated data and information will interfere with and affect each other, resulting in a significant increase in the probability of data loss. For the big data information platform, it has the characteristics of development, which not only brings convenience to our life and work, but also easily causes security risks. Some network hackers will use the loopholes of big data to steal relevant data resources, causing great losses to users. In the face of these security problems, it is necessary to strengthen the application of software engineering technology in the context of big data, and effectively improve the security and reliability of data and information through software engineering combined with information security technology. In order to protect data security, people avoid data leakage through layer upon layer defense.

3.4 Speed up the construction of software engineering

In the era of big data, the data structure is relatively complex and cumbersome, and the data capacity is large, so the data processing ability of the software system is required to be higher, and the software engineering technology needs to be constantly updated. Although the existing software engineering technology can be well applied to the big data platform, it is difficult to analyze and process the massive data information in real time. Therefore, it is necessary to accelerate the pace of software engineering construction, improve the existing data management technology, and redefine software engineering technology to ensure that it can better serve mankind.

4. Special application and future development of software engineering technology under the background of big data

At present, China's social science and technology are changing with each passing day. With the popularization and application of computers, people's life and learning have changed greatly, which also directly affects people's way of thinking. Especially in recent years, the development of big data technology has had a huge impact on all walks of life, setting off a wave of intelligence. In addition to ensuring the overall operation of the company, it can also help in the analysis, statistics, modeling and other aspects of the company's relevant product data.

For example, when an enterprise develops a product, it analyzes its data. In this process, enterprise technicians use software engineering technology and big data analysis technology to mine and study the production feasibility, profitability, quality and other information of the product. Then, according to the error of the data analysis results, the optimization is continuously adjusted and the relevant optimization model is established. On the other hand, in the future practice and development, big data and software engineering technology will gradually develop towards openness. Only massive amounts of data can allow big data technology to be fully applied and involved, but the technology is updated quickly. To keep pace with the times, we must actively explore the open development path. In short, it is to establish a good communication relationship between computers and networks to realize resource sharing. So as to effectively enhance the information utilization ability of the software, and then give full play to the advantages of the network to provide diversified demand services for different user groups. On the other hand, future software development technology should also be actively integrated into other fields. Software technology can be seen in many scientific fields, and its role is self-evident: from aviation to biological applications, due to the influence of software technology, data collection and analysis in these fields can be achieved with the help of data platforms. In addition, it can also be applied to the purchase of stocks, using software technology to analyze big data, form data models, and carry out scientific and reasonable analysis and inventory prediction.

Epilogue

In a word, the continuous development of software engineering technology based on big data technology has provided strong support for the management and development of Chinese enterprises and institutions. Through the analysis of this paper, it is not difficult to see that with the rapid development of the era of big data, enterprises and other application subjects must have a profound understanding, research and development of key technologies, so as to obtain high-quality services through software engineering, meet their own development needs, and promote the development of the whole software engineering.

References:

[1] Xu Zhao On the application of software engineering technology in the era of big data [j]China Equipment Engineering, 2021 (24): 23-24

[2] Xiaoyu Zhang Application of software engineering technology in the era of big data [j]Computer knowledge and technology, 2020,16 (33): 84-85+105

[3] Yipei Huang Research on the application of software engineering technology in the era of big data [j]Digital design, 2021, 10 (5): 1

[4] Xianghui Huang Research on the application of software engineering technology in the era of big data [j]Information recording materials, 2021, 022 (009): 108-109

[5] Hongbing Wu Application of software engineering technology in the era of big data [j]Data, 2021, 000 (012): p.91-92