

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

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Keywords: The era of big data; Software engineering technology; application research

Abstract: With the arrival of the big data era, the development of software engineering technology has become a current hot topic. In the software development process, use the analysis of big data to constantly improve and perfect the product, improve the intelligence of the product, and provide more convenience for people. Software engineering technology is an emerging computer technology that can not only improve the work efficiency of enterprises, but also play a significant role in the economic development of society. This project focuses on software engineering technology in the context of big data.

1. Introduction

The emergence of big data has greatly changed people's production and lifestyle, and has had a profound impact on it. The arrival of the big data era has brought new ideas and directions to the development of software engineering technology, laying a solid foundation for its research and application; With the popularization of the internet and the rapid development of mobile terminals, the impact of the information age on people's production and daily life has become more significant, and the application of software engineering technology has made these changing factors more prominent.

2. Overview of Software Engineering Technology

The so-called "big data" essentially refers to a large amount of digital information generated in the process of social production and life. From the perspective of functional characteristics, big data technology includes a number of high-tech technologies such as genetic algorithm, information analysis, voice processing and machine learning. It is an important product of the continuous improvement of China's scientific and technological level. Based on modern technological means, big data has been widely applied in various industries and fields in China, and has achieved ideal practical results, especially in the internet industry, where its advantages have become more apparent. With the continuous emergence and application of big data technology, software engineering has undergone rapid development. In the mid-20th century, domestic software

engineering research still focused on the research and development of software technology and engineering management. However, in recent years, due to the improvement of information technology in software engineering, people have gained a deeper understanding of the concept and value of software engineering. At present, the research of software engineering has extended to various aspects such as engineering design, software technology maintenance, and software lifecycle design. Compared with the past, domestic software engineering technology has made significant progress, and one technical problem after another has been solved, significantly extending the lifecycle of software engineering. In the actual promotion of software engineering, not only the quality of the project should be strictly controlled, but also the cost of technology development should be reasonably controlled to ensure that various technical needs can be met, creating conditions for the prosperity and development of the software engineering industry.

Software engineering technology is the use of computer technology to analyze and study problems encountered in software development, and provide corresponding solutions. Its main features are: software design aimed at completing the overall system functions; The program used is portable and can be modified to improve its performance; After the entire system architecture is completed, it is necessary to control its quality and reliability. Based on the above characteristics and advantages, this article divides it into data collection, data processing, information storage and display, and human-computer interaction. The most important aspect is data collection, which directly affects the effectiveness of users and is also related to the development status of an enterprise.

2.1. Concept of Software Engineering Technology

Software engineering technology refers to the use of computer software technology to analyze and process data during software development, and use relevant algorithms to verify the results, thereby improving product quality. In the context of big data, enterprises can provide optimal services according to their own needs; The concept of "big data" is gradually becoming familiar to people in the era of big data. Its essence is that compared to other information technologies, the significant improvement and enhancement of information collection, storage, and management capabilities can effectively promote the economic progress and development of the entire society[1].

2.2. The Role of Software Engineering Technology

In the software development process, software engineering technology plays an important role. In software development, in order to obtain the information that users need, it is necessary to analyze the data to obtain the information that users need. With the development of social economy, software engineering technology is also constantly advancing. With the arrival of the big data era, the application of software engineering technology has become more widespread. It is no longer limited to computer hardware, but involves the software strength associated with it, such as database technology, network communication technology, virtual reality technology, etc. So, we need to learn more about software engineering. However, with the expansion of the market, its importance is also increasing, which makes its research and development more difficult. This requires relying on relevant technical talents, and also using software engineering technology to improve the operational efficiency of the entire industry.

3. Application issues of software engineering technology in the context of two big data

3.1. Application Issues of Crowdsourcing Software Service Engineering Technology

Currently, in the application process of crowdsourcing software engineering technology, excessive emphasis is placed on the processing of data and information, while neglecting a comprehensive examination of the data generated from information data. It has not effectively adjusted and innovated software engineering technology in the big data environment according to the needs of centralized processing of information data, making the application of this technology unable to adapt to the continuous updates of big data technology, This also prevents the technology from achieving optimal updates during application. In the application process, some crowdsourcing software service engineering technologies did not conduct comprehensive observation and analysis of the composition of streaming data, nor did they actively and effectively investigate the management and control of dense data, resulting in the inability to build a mature and systematic service platform, and cannot guarantee the comprehensive improvement of the service level of crowdsourcing software. The formulation of some group data service solutions is incomplete, and the specific application advantages and value of software resources are not fully developed. In practical innovation and development of service engineering technology, the value of intensive data is not fully grasped, resulting in the construction of crowdsourcing software service engineering being unable to effectively develop the application value of offline intensive data while meeting specific requirements, There is no guarantee that big data technology can play a positive role in crowdsourcing software service engineering[2].

3.2. Innovative Issues in Data Information Storage Patterns

At present, some software engineering technicians do not pay enough attention to the storage methods of data information and do not comprehensively study the development and innovation status of big data technology, resulting in problems in the optimization and updating of various basic elements in enterprises. They cannot effectively process big data and achieve the preservation and management of data resources. Some software engineering innovations have not fully summarized the changes in information storage modes. Although various hardware resources required for information storage have been optimized and innovated to a certain extent, the existence of information is still in the form of text, which cannot effectively organize and apply information forms such as images and videos. Ultimately, the storage and control effects of information data cannot be maximized. It also leads to the specific use value of software engineering technology not being reflected. Although many ways of storing information and data have integrated the characteristics of software engineering technology for innovative development, due to the lack of analysis and investigation of computer hardware performance, and the lack of timely and reasonable summary of the relevant hazards of data loss, software engineering technology cannot effectively control the loss of information and data in the practical application and innovation process without determining the requirements for information storage space innovation. It also leads to the inability to create high-quality cloud storage platforms in the context of cloud technology.

4. Software Engineering in the Era of Big Data

4.1. Introduction to Big Data

The concept of 'big data' was first proposed by renowned American scholar Victor Mayer

Scheenberg. With the continuous development of the Internet and the widespread application of the Internet of Things, more and more people are beginning to recognize the importance of massive data and have conducted in-depth analysis and research on these data. Therefore, when developing software engineering technology, it is necessary to consider how to transform a huge customer relationship into tangible, intangible, and with special practical value. In the research and development stage of software engineering technology, the first problem people need to face is how to connect various different enterprises and effectively integrate and optimize them[3].

4.2. Development Trends of Software Engineering Technology in the Era of Big Data

Based on this, this article analyzes the development trend of software engineering technology: in the era of big data, the continuous development of computer technology has made the application fields of software engineering technology more extensive. At the same time, the development of society, technological progress, and the increasing demand of people have gradually increased the market share of software engineering technology, which makes the research and development of software engineering technology more important. In the big data environment, with the development and popularization of software engineering technology, the competitive landscape between enterprises is changing. Nowadays, due to the continuous progress of science and technology, people's living standards have greatly improved, while also driving the rapid development of the economy, which puts forward higher requirements and standards for our hardware equipment. On this basis, continuous innovation is carried out to meet the requirements of users, thereby promoting the development of software engineering.

The arrival of the big data era has brought enormous opportunities for technological updates in software engineering. In the past few decades, the development trend of software engineering has undergone significant changes: from traditional data processing models based on data to computer-based information management models based on computation and analysis, there has been an increasing reliance on computers. The popularization of the Internet enables people to obtain a large amount of relevant information from the Internet, thus enabling us to better utilize the Internet for work. In the context of big data storage and sharing, the integration of database concepts and technologies will inevitably lead to new problems: traditional databases are limited in storage capacity and require data storage on different servers. Cloud computing provides a new solution. With the development of cloud computing technology, the scale of models continues to shrink and their performance continues to improve[4].

5. Application of Software Engineering Technology in the Era of Big Data

At present, software engineering has become the main method of software development, and in the context of big data, software engineering has also rapidly developed and played an important role. Firstly, in the era of big data, we can gather a large amount of data together to form a huge database, and then use the network as a platform to analyze this information to determine the needs of consumers and provide more convenient services for them. Secondly, the popularization of the Internet and the development of technology have greatly improved people's work efficiency, reduced business expenses, and made it easy for users to find the information they need; Fourthly, this is a highly open era. With big data, software, and more applications, we can provide users with a better user experience.

5.1. Efficient Collection of Data Information

From the current social development situation, big data technology has been linked to our daily

life and production, bringing us enormous convenience. In the era of big data, how to accurately and quickly obtain massive amounts of information data has become a focus of attention. In addition, with the continuous development of software engineering technology, sufficient attention should be paid to the important aspect of information data collection. Therefore, in the context of these two aspects echoing each other, relevant enterprises can maximize the use of software engineering technology to collect various relevant information data in the shortest possible time, and make reasonable and accurate classification and adjustment. To ensure that the computer system has good collaborative ability and further improve its stability, only in this way can a large amount of information data be stored more effectively. In addition, when selecting and applying software engineering technology in practice, it is also possible to deeply explore the specific and potential needs of users, and make them the most basic points to strengthen the processing of information data. From here, we can see that big data contains a large amount of data and information, so there must be a lot of redundancy. In this case, relevant staff can use software engineering technology to delete it. This method can improve the processing efficiency of information data from both the system and global aspects, and also greatly improve the level and quality of data utilization, Thus reducing unnecessary collection and preservation costs[5].

5.2. Data information storage capacity

In modern society, while people are enjoying the convenience brought by big data technology, they are also generating an increasing amount of information. How to scientifically store this huge amount of information is an urgent problem for enterprises related to it. Compared to previous GB and TB, big data requires higher storage levels and has already reached the data volume of ZB. Under the combined influence of various factors, it should scientifically and efficiently store information data, not only limited to storing text, but also incorporating content such as videos and images, which are important components of the data community in the big data environment. Reasonable and effective application of software engineering technology can promote further optimization and expansion of computer storage space, and can maximize the storage requirements for information data. In addition, the rational use of software engineering technology can effectively prevent the loss of information and data during storage, which plays a very important role in ensuring the reliability of data information. In addition, in the actual application of software engineering technology, information data should be stored in cloud storage. Based on cloud technology, the energy in cloud space should be released, so that the storage space of the computer system can be used scientifically and efficiently, thus improving work quality and efficiency[6].

5.3. Strengthening the Security of Information Technology Applications

With the rapid development of big data technology, the amount of information in data is constantly increasing, and the correlation between data is also constantly enhancing. In this context, how to effectively avoid mutual interference and influence between data has also become a topic that relevant enterprises must pay attention to. To ensure the rationality, independence, and security of information data, it is necessary to analyze their interrelationships in a targeted manner, effectively prevent their internal interference, and also provide security protection for the data system. At present, most people can obtain massive amounts of information data through data platforms, and with the acceleration of human life pace, people are paying more attention to the authenticity, security, and risk of information data. When obtaining various types of information and data, they often encounter a large number of hacker attacks, posing a great threat to the security and stability of information and data platforms. Once this information is leaked, it will cause great losses to people's property and life, and bring great interference to people's work and life. Faced

with such a situation, relevant units and personnel should pay more attention to the security of information storage. In the process of developing engineering software, it is necessary to increase research on data security technology and continuously improve its level to ensure the safety and reliability of information data storage and processing[7].

5.4. Correlation between Data Mining and Software Management

By utilizing big data technology to deeply mine information resources, the development quality of software engineering technology can be comprehensively improved, and the control ability of software engineering projects can be improved. Combining data mining with software management helps software systems to deeply explore the potential value of information data and discover its essential characteristics. Relevant staff can optimize the service level of software engineering projects more effectively based on the value characteristics of data information, laying a solid foundation for its faster and better development.

5.5. Basic functions of software

In the practical research and development of software engineering technology, due to the need to write many programs to better complete the functions of software engineering systems, software development work is very complex. With the rapid development of big data technology, software engineering technology can efficiently collect and analyze the specific needs of enterprise users, excavate the potential value of information data, scientifically and appropriately adjust software according to the actual needs of enterprise users, and improve the basic functions of software services according to the development status of software services, so as to continuously optimize the service functions of software, Provide better service to our customers[8].

6. Future Development of Big Data and Software Engineering Technology

6.1. Development of Big Data and Software Engineering Technology

With the development and improvement of big data technology, network information technology has gradually penetrated into various fields and been widely used, and humanity has entered the era of big data dominated by the internet. To promote the long-term development of big data technology, it is necessary to actively seek new development paths from a new perspective. Internet information technology can not only generate a large amount of information, but also discover more high-tech talents, thereby achieving continuous optimization of related technologies. To promote the sound and rapid development of software engineering technology, it is necessary to strengthen the construction of a big data technology development environment, achieve free sharing and exchange of data information, and improve the quality and efficiency of data applications. The development and application of internet information technology can also bring profits and better meet the needs of more users. In addition, it can improve the utilization of various resources and software engineering technologies in the context of big data.

6.2. Multiple fields of application of big data and software engineering technology

With the continuous development of big data, people's daily life and work are increasingly inseparable from the internet, and big data technology has also been applied to many fields in the continuous development of society, with its coverage becoming wider and wider. As people's demand for applications continues to increase, software engineering technology and big data

technology must continue to innovate and develop in order to better meet various needs. This requires combining the two and carrying out innovation in order to better serve social development. Currently, with the development of the virtual economy, the application range of software engineering technology is becoming wider and wider, promoting the development of various industries, enabling engineering software in many fields to operate efficiently. At the same time, it can also collect information and conduct data analysis for various industries, enabling users to obtain the best experience and truly needed or valuable information data[9].

6.3. Development Trend of Intelligence

In this process, enterprises can fully leverage the value and advantages of big data technology to achieve intelligent development. In software engineering technology, due to the constantly changing psychology of users, software engineering technology requires continuous innovation and optimization in order to better adapt to the actual needs of the public. In the actual research and development of software engineering technology, it is necessary to have the support of big data technology and provide more authentic and effective market demand information for the software. Based on the true characteristics of data, a comprehensive analysis of the specific needs of users should be conducted. With the support of current software engineering technology, software should be designed and produced based on the information content provided by data, and the traffic generated by big data should be used for commercial activities. Related to it is prediction and analysis. Big data technology has played a great role in software analysis, as it can analyze its specific functions, as well as its market, positioning, etc. How to better assist data analysis with big data technology? Software engineering technology can deeply integrate with big data technology to mine information data at a deeper level, apply information content to more suitable markets, and achieve more ideal expected results. In order to better utilize internet technology, relevant personnel should strengthen targeted research on technology and theory when processing information data, actively seek methods that are conducive to the development of software engineering technology, in order to promote the long-term, stable, and good development of software engineering technology in China, always leading the world and becoming a new trend of the times[10].

7. Conclusion

From the above discussion, we can see that with the rapid development of big data technology, humans have generated a large amount of information data. At the same time, the application range of big data technology is also becoming wider, and the requirements for big data are also becoming higher. In this context, in-depth research has been conducted on software engineering technology. Therefore, when conducting further research on this technology, it is necessary to conduct in-depth analysis of the characteristics of big data, and on this basis, actively and effectively improve the level of software data processing. In addition, when developing software engineering technology, it is necessary to combine current reality and continuously innovate to ensure that the application of software engineering technology can be more scientific and effective in the context of big data[11].

Acknowledgements

This paper cannot be created without the guidance and teaching of the tutor, the tutor will carefully and relevant professional knowledge of the problems arising during the study and analysis, to ensure that the overall thinking of the article under the premise of optimizing the thinking logic of the article, change the corresponding wording and grammar, so I complete this report to the tutor table.

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