Research on Application of Data Mining Technology in Software Engineering

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Abstract: With the continuous development of science and technology, it is also a very rapid rise in the development and utilization of software systems, and the prospect of software development technology is expanding day by day, gradually becoming more complex and more systematic. It is more difficult to speculate on the object of software processing, the process of management and the level of use, and the technology used is more advanced. Then the process of data mining technology is introduced into software engineering to achieve software upgrade development. Through the data of software engineering to analyze the digital code involved in the project, the machine fault problem of software and hardware equipment, the engineering project standard to undertake, the use of software development in China to follow the rules, further in-depth research and exploration.

1. Introduction

With the continuous development of information technology, people are in contact with the analysis of information data all the time in life. The era of 1.4 billion people in China, one mobile phone per person, is not so far away. After the Big Bang of knowledge and information, it is the statistics and analysis of every data. On the other hand, it can also improve people's work efficiency and analyze the daily affairs of statistics. In this paper, the application of data mining technology in software engineering is introduced to make data mining play a more far-reaching impact in all aspects of technology software engineering.

2. Definition of Data Mining Technology

Data mining technology means that people face a large number of confused, confused and fuzzy data to analyze and collate, from which to find the valuable and meaningful data in the data, so that these data are classified and sorted, stored and arranged, and data analysis to obtain some data deviation information, so as to have a broader market. In today's new era of knowledge explosion, people face a variety of data information, some people can reach an amazing level of information, but some people in the access to information can only be a corner of the existence [1]. In software development engineering, there is a great deal of available information which is lost because the data information is not in place.

3. Data Mining Process

In the use of data mining technology, the application of this technical tool, to have a set of processes and a step of support, that is to select the data in the software database, in the selected data processing, to find useful data, data in the format operation, then formatted data for deep mining information, and finally to find the relevant data knowledge can be applied and absorbed, so that the data in the service of the public. In software engineering, data mining technology tools need to be divided into three levels, including interactive observable data, automatic extraction of useful data after data search and later useful data for modeling.

4. Challenges of Data Mining in Software Engineering

4.1. Data Diversification

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Software engineering to make data useful is a complex process, and in the mining process, the data is diverse, the most common is structured and unstructured data. These two kinds of common data mining are conflicting and incompatible, that is, can not use the same method for analysis processing, but these two kinds of common data mining are mutual fusion, interrelated and unified whole, so the complex data intertwined together increases the difficulty and breadth of data analysis [2].

4.2. Data Technology Applications

In data development and utilization, data mining technology is not the beginning of the normal analysis of all kinds of data, in order to carry out data analysis and processing, in the use of data technology to different problems on the use of different operations, considering the source of data information, information processing, application research data results, software engineering data categories to visualize the operation, replicative innovative learning research, not using mining technology in the use of software engineering disjointed, so as to achieve a better state to manage the data.

Figure 1 Data technology in all directions

4.3. Lack of Data Mining Information Rules

It is also necessary to look at the results of the final mining for evaluation in software engineering. In the application of mining technology in software engineering, there are algorithms used to mine data and the complexity of a long series of related information which can produce useful data information. When this step is completed, the presentation of the data is complex. How can the analysis of the data be presented to the manager for a clear overview of the data and cognition [3]. There is no uniform standard method, that is, in this data mining technology there is no molding data mining rules to support, so data mining in software engineering technology can not carry out scientific and orderly evaluation.

4.4. User Experience

The purpose of mining the data is to transfer the useful data to the user, so it is necessary to consider and think about whether to display it in words, pictures, sounds or integrated video before it is displayed in front of the user. On the other hand, in software engineering, there is more than one way for users to share and use, in other areas of software engineering, the use of document text or table methods to achieve the purpose of data transmission, data clarity analysis is also a rather complex work, to do these work, only the analysis and differentiation of data processing can be barrier-free operation and increase the user's sense of experience.

Figure 2 User experience

5. Application of Data Mining Technology in Software Engineering

5.1. Application of Software Management in Software Engineering

The application of software management in software engineering can be regarded as two levels of data analysis management, one is the management of open source software after data collection, the other is the management of software project after data development and utilization. Open source software management is a special kind of management, so in the process of data blackening operation management. Although there are various kinds of software in open source software, and everyone can use and learn from it at will, it is very critical and necessary to protect the information in the data of this project in this process, and it is very difficult to manage the safe information in the whole operation process. On the other hand, it is difficult to guarantee and guarantee the quality of data information, so it can only improve the quality of data in data mining technology to improve the open source quality of software engineering, thus serving the whole software engineering system. In the use of open source software technology to manage software information, while data mining technology to refer to the data collation and data organization, so that the overall aspect of data interaction and data transmission [4]. Updating the software version after software development is also a difficult problem. It is necessary to repair and improve the information of the data, find the loopholes and missing items of the software in the retrieval, remind the users to operate and update the version of the data security, reduce the loopholes and repetitive contents in the software, and help the new development and maintenance of the software in the later period.

Figure 3 Data information management

5.2. Application of Debugging in Software Engineering

Software coding is a core technology, in the operation of a large number of repetitive things need to be detected and analyzed, data search and inspection to improve the efficiency of data use, coding use, code uniqueness can reduce the appearance of repeatability. Software data engineering and then engineering data debugging, adjust the need for software retrieval and vulnerability repair and make up, error item information modification, improve the quality of software information to increase the use of the software users, so as to obtain a continuous flow of users [5]. But debugging work is not a simple work and simple data search, but a huge data system to carry out the process of

data import and export, a large number of data retrieval and application to increase the security of data, and there is no process of virus intrusion, it is necessary to establish a data complete analysis database, a layer of data connection to enhance protection barrier design, to achieve the stability of software engineering in the development and utilization.

5.3. Data Mining Troubleshooting in Software Engineering

The application of data mining technology in software engineering is the use and execution of all-round, multi-level and wide fields, and the troubleshooting operation of software is carried out through the instructions and rules of program records [6]. In this process, the program before and after the sequence of instructions and debugging steps of the reference, increase the tracking of information, and data maintenance and repair. So that in the development and utilization of data to maintain troubleshooting risk and improve efficiency, reduce risk, users will be more assured.

6. Concluding Remarks

The application and management of data in software engineering can improve the speed and efficiency of developing software, improve the quality and information of data, increase the link of data use and data utilization information through the support of software information technology, increase the amount of information used in data mining in software engineering.

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