Research on the Development and Application of UML Modeling Technology Based on Software Engineering

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Abstract. Modern life style can be said to have been built on big data and computer science, is a new way of life, completely different from the past mechanical and electrical era of life. Among them, the application of software engineering has become an indispensable part in various fields, and the diversified development of its development technology is also an important reason for the popularization of computers. In this paper, computer software development technology under the background of big data is analyzed, and the importance and necessity of computer software development is discussed.

Keywords: Big Data, The Computer, UML Modeling Technology, Application

1. Introduction
With the rapid development and update of Internet, computer UML modeling technology has developed from a simple program into a direction of computer software development.[1-3] With the development of the World Wide Web, computer UML modeling technology has made a breakthrough in many areas, but also in the performance and function has made great progress. UML modeling technology as an important way of computer software development has been widely recognized, its many advantages destined to computer UML modeling technology has a broad prospect.

2. Application of computer software development technology

2.1. Definition of software
With the development of UML modeling technology, computer software has gradually stepped into an era of simplified use, large software volume, general software and software commercialization. Among them, the development of software is very important for the application and improvement of computer performance, and layering technology is the most basic development technology in software development [4-6]. By combining and grading the overall software development work, the software development process is divided into multiple levels, each of which sets a single solution. Figure 1 is a typical representative of the Java programming language, which is also the basis of computer software development:

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Figure 1. One of the foundations of computer software development: programming.

As shown in Figure 1, with the gradual formation of the computer UML modeling technology, software developers feel it is necessary to have a clear definition of software. Society in constant development and progress, computer software development also in rapid development, gradually moving towards intelligent and digital high-speed, step by step in improving the quality of our living standards and, with our daily life closely together, have strong to many important areas have reached the point where they cannot leave computer software development, from the core of the whole country in science, to our each person's life, has a close relation and computer software development, has been firmly together and computer software development.

2.2. Common computer software development techniques

Common computer software development techniques are various, mainly including the following categories. XML technology, Web Services technology, in addition to these technologies, there are object-oriented programming, UML modeling technology, C++, C language, etc. We selected 100 computer software on the market, conducted a multi-dimensional investigation and analysis, using the following formula 1, to obtain further data table 1.

Generally speaking, the higher the degree of similarity, the higher the competition level of a product between the two students. Its formula is expressed as:

\[
S^p(i,j,k) = \frac{1}{2} \left( \frac{(X_{ik}/X_{ik}) + (X_{jk}/X_{jk})}{2} \right) \times \left( 1 - \frac{(X_{ik}/X_{ik}) - (X_{jk}/X_{jk})}{(X_{ik}/X_{ik}) + (X_{jk}/X_{jk})} \right) \times 100
\]

Where denotes the product similarity index i and j of the export of i student and student j to market k, indicating any two students to be compared, k represents the third market or international market, and X represents the export. Represents the share of the first product exported by the student i to the k market. ik represents the share of the first product in the products exported by the j student to the k market. The results of this index vary from 0 to 100. It also shows that the structure between the specific markets of the two students and the export of agricultural products is different. \( S^p(i,j,k)X_{ik}/X_{jk} \)

Computer software development is a comprehensive field, covering a lot of aspects, including the construction of computer system, software and program application for continuous optimization and improvement, the need for the combination of theory and practice. Because the development of computer is closely linked with the development of software, the computer has been relying on the optimization and support of software to constantly develop and progress, from the work of software development to improve the overall performance of the computer.
2.3. Embedded technology of computer software development

The emergence of software development of embedded technology can be very good to change current situation, in the process of software development, software development of embedded technology can analyze the data and filter, and then the data of the whole environment to make a purification, to a certain extent of error code and instructions have played an important role in filtering and cleaning, and through the software development, layer upon layer identification and screening of embedded technology, the wrong instruction are influenced by the cleaning in advance, through the embedded technology to reduce the code error in the software development process, reduce the workload of the task of software development, improve the efficiency of software development. By using Formula 1, the software development effects of big data and ordinary computers are statistically analyzed through the investigation of 100 selected computer application software, and the relevant data in Table 1 are obtained:

Table 1. Data comparison table of computer software development under the background of big data

| Control content | Pre-test | Post-test |
|-----------------|----------|-----------|
| Test group | Control group | Test group | Control group |
| The average score | 2.780 | 2.540 | 3.24. | 3.050 |
| Standard deviation | 0.474 | 0.497 | 0.427 | 0.438 |
| T value | 0.986 | | 1.508 | |
| P value | 0.325 | | 0.117 | |

The data in Table 1 show that the average score of the experimental group and the control group in the post-test is higher than that in the pre-test. In this dimension, independent sample t test showed that there was no significant difference between the experimental group and the control group (P = 0.117 > 0.050). Paired sample T test showed that there was no significant change in the experimental group and the control group, indicating that computer software development under the background of big data has been improved comprehensively.

3. Prospect of computer software development technology

3.1. Open

The open trend refers to the openness of software source code and standardization of software products. In the actual work in the field of software engineering, open source software is a very important mining object, in which the detection of cloned code plays a very important role and is widely used in the development of source files, effectively implementing data copy work and data paste work. With the high informationization and integration of the society, the production of software engineering products needs to be reformed and should be closer to the market demand and application. Because of the historical problems of traditional software engineering, it is difficult for the production of software engineering products to communicate with the needs of the society. In today's rapid development of data, market demand is transformed into a variety of information data, which can be filtered and repaired with the help of data technology to reduce the risk of enterprise management. For example, the data cannot be fully understood, the management and design of software engineering cannot be well combined with the market demand, and finally the products manufactured by software engineering cannot fit the market demand perfectly.

3.2. Intelligent

Intelligentization means that computer software development technology has people's thinking and operation mode. At present, artificial intelligence technology has achieved rapid development and is widely applied. In the future, software development technology will also develop in this direction. Therefore, in the actual operation process, the application should be carried out according to different requirements, in order to achieve efficient and flexible service. For example, in the development and design of an application software, inherit FlyingObject, override the Step method, and implement the
Award interface. The selected object (Bee) can move left and right and down, so it contains the property of Speed and the judgment of overstepping. The code is as follows:

```java
package shoots;
import java.util.Random;
public class Bee extends FlyingObject implements Award{
    private int xSpeed = 1;
    private int ySpeed = 2;
    private int awardType;
    public Bee(){
        image = ShootGame.bee;
        width = image.getWidth();
        height = image.getHeight();
        Random rand = new Random();
        x = rand.nextInt(ShootGame.WIDTH-this.width);
        y =-this.height;
        awardType=rand.nextInt(2);
    }
}
```

The code shown above is only part of the application of computer UML modeling techniques in the context of big data.

The computer programming language under the background of big data happens to be an object-oriented programming language, in which each module is built on the basis of the application for functional decomposition.

In the computer software development technology, artificial intelligence has many aspects of application, especially in the computer software development technology, the application is more extensive. Artificial intelligence techniques, such as fuzzy logic, do not require detailed descriptions of mathematical models of systems. Artificial intelligence technology can not only process the massive data information to the computer software development technology, but also optimize the computing program. Through the fast calculation of high-speed computer, it can solve the most intractable problems and conduct the command of the computer software development technology system. In order to better optimize and upgrade the computer software development technology, it is necessary to evaluate the overall situation and application ability of artificial intelligence technology, improve the ability of analyzing massive information data and the overall spatial analysis ability of data.

4. Conclusion
In a word, computer software development technology plays an important role in promoting the normal operation of computers and improving the overall performance of computers. At present, the layered technology of software development has been applied to different degrees in the whole software development process, and has achieved remarkable results. China's software development stratification technology is also in continuous development and progress, and has made a lot of excellent results, but not limited to these results, we keep trying to break through the technical bottleneck of software development technology, solve technical problems, optimize and improve the overall performance of software development technology.

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