

Computer Programming Skills and Maintenance based on Wise Information Technology of Med

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Abstract: With the progress of science and technology, Wise Information Technology of Med is gradually changing the traditional medical service model. Computer programming technology plays a key role in this revolution, which not only involves the processing and analysis of medical data, but also includes the intelligent control of medical equipment. It is of great significance to master advanced programming skills and carry out effective system maintenance to ensure the reliability and security of Wise Information Technology of Med.

Keywords: Wise Information Technology of Med; Computer programming skills; Maintenance

Introduction

Wise Information Technology of Med has become an important direction for the development of the medical industry, which improves the efficiency and quality of medical services by integrating information technology, data analysis and artificial intelligence. Computer programming is one of the core technologies of smart medicine, and its skills and maintenance are very important to ensure the stable operation of the system and the security of data. This article explores computer programming skills in the context of Wise Information Technology of Med and provides corresponding maintenance strategies to provide technical support for the digital transformation of the healthcare industry

1. Characteristics of Wise Information Technology of Med

The core of Wise Information Technology of Med is the efficient use of data. By integrating and analyzing large amounts of medical data, including patient's medical history, examination results and real-time monitoring of vital signs data, Wise Information Technology of Med can provide doctors with more accurate diagnosis basis. Through the application of advanced algorithms and artificial intelligence technology, Wise Information Technology of Med can realize the prediction of the development trend of diseases, so as to formulate treatment plans in advance and improve the success rate of treatment. In traditional medical models, the treatment plans for patients are often relatively unified and lack specificity. Wise Information Technology of Med can provide more personalized treatment recommendations by analyzing the specific situation of each patient. For example, through genetic sequencing technology, doctors can understand the patient's response to specific drugs, thereby selecting the most suitable drugs and doses.

2. Computer programming skills based on Wise Information Technology of Med

2.1 The selection skills of programming languages

In the field of Wise Information Technology of Med, selecting appropriate programming languages is critical to developing medical applications that are efficient, stable, and easy to maintain. VB.NET is a programming language that easy to learn and use and can offer graphical user interface (GUI) design capabilities, which makes it ideal for rapidly developing front-end interfaces for medical applications. VB's simple syntax helps non-professional programmers get started quickly, which is very beneficial for medical professionals to participate in the development process. VB.NET's performance and cross-platform capabilities are relatively weak, so it may not be the best choice in situations where high performance computing or cross-platform deployment is required. C programming language is an efficient, flexible, and powerful programming language that provides direct access to hardware, making it very useful for low-level system programming or performance intensive tasks such as medical image processing. The code execution speed of C programming language is quickly, and its resource consumption is low, making it very suitable for developing medical device control software or high-performance computing software. However, learning C programming language requires developers to have strong foundation and excellent ability. Java is a cross platform programming language that provides the ability to "Write Once, Run Anywhere".

2.2 The design of user interface

User interface (UI) is the window for Wise Information Technology System of Med to interact with users. Excellent UI design can im-

prove user experience and enhance the usability of the system. The interface should be kept simple to avoid distracting the user with too many visual elements. Clear layout and reasonable blank-leaving can help users quickly find the functions they need. A consistent system interface style, including colors, fonts, button styles, etc., is able to make users feel familiar and comfortable when switching between different pages. The system should give timely feedback to the user's operation, such as loading animation, operation success prompt, etc., so that the user can understand the system status. Intuitive ICONS and clear text descriptions are helpful to help users quickly understand functions and reduce learning costs. Taking into account the needs of different users, such as colorblind users, elderly users, etc., it's advisable to provide options for high contrast mode, fonts enlargement, etc., there by ensuring the accessibility of the UI.

2.3 Machine learning and deep learning algorithms

The application of computer programming skills in Wise Information Technology of Med is reflected in the collection, processing and analysis of medical data. Medical data usually includes patients' medical records, examination results, treatment records, etc. These data are enormous and complicated. Through programming, an efficient data management system can be developed to achieve rapid and accurate data retrieval and analysis. For example, the programming languages such as Python programming language, R programming language and Java programming language, programs can be written to clean and organize data, laying the foundation for subsequent analysis. The application of machine learning algorithm in Wise Information Technology of Med is mainly reflected in disease prediction, diagnosis assistance and treatment plan optimization. Machine learning is a technique that allows computers to improve the ability to perform tasks by learning from data. In the medical field, machine learning algorithms is a good help to analyze patients' medical data, predict the development trend of diseases, and assist doctors to make more accurate diagnoses. For example, the application of machine algorithms such as support vector machines (SVM), Random Forest and Neuralnetwork, models can be built to identify early signs of disease and process data by simulating human brain's neural network structure.

3. Maintenance of Wise Information Technology of Med

3.1 System monitoring and troubleshooting

The stable operation of the Wise Information Technology System of Med is crucial to ensure the quality of medical services. System monitoring and troubleshooting is the key to ensure the continuous and efficient operation of the system. Using monitoring tools to track system performance metrics such as CPU usage, memory usage, disk space, network traffic, etc. in real time, as well as application response times and error rates, collecting and analyzing system logs, including application logs, security logs, and database logs, such these measures mentioned above can detect abnormal behavior and potential problems in a timely manner. Setting thresholds and alarm rules, so that the alarm notifications can be automatically sent to operation and maintenance personnel when system performance indicators exceed the normal range. Once the monitoring system sends an alarm, the related personnel are supposed to respond quickly to locate the cause of the problem firstly; Then they should isolate a failing system or component to prevent the problem from spreading to other parts; Next an in-depth analysis of the cause of the fault need to be conducted, such as hardware failures, software defects, configuration errors, or external attacks. Based on the fault analysis result, related personnel need to take corresponding measures, such as restarting services, updating software, and adjusting configurations, so as to ensure that the system recovers.

3.2 Performance monitoring and optimization

Performance monitoring typically involves tracking system resource usage, such as CPU usage, memory usage, disk I/O, and network bandwidth. These indicators help maintenance personnel understand the real-time running status of the system and identify potential problems in time. For example, if CPU usage is persistently high, it may mean that the system is overloaded and needs to be optimized or expanded. A variety of tools and techniques can be applied to effectively monitor system performance. For example, performance monitoring software such as Nagios, Zabbix, or Prometheus can collect and analyze system performance data in real time. Log analysis tools such as ELKStack or Splunk can find unusual behavior or performance issues by analyzing system logs. Performance optimization refers to adjusting the system based on monitoring to improve its efficiency and response speed. Optimization measures may include code optimization, database index adjustment, cache policy application, load balancing configuration, etc. For example, optimizing database query statements or adding appropriate indexes can significantly improve data retrieval speed.

3.3 Software update and process upgrade

Software update and upgrade is an important part of the maintenance of Wise Information Technology System of Med, which involves repairing vulnerabilities, improving performance, adding new functions, etc. There is a need to determine update content based on user feedback, reports of security vulnerabilities, or business needs. Fully test updates in a non-production environment can ensure that updates do not introduce new issues. Operation department should make a detailed update plan, including updates time, impact scope, rollback plan, etc. and

inform users prepare accordingly in advance. The related personnel are expected to develop upgrade plan of software version, including the development of new features, optimization and obsolescence of old features: For large-scale upgrades, a gradual migration strategy can be adopted, which is piloted in some users before being fully promoted, and then user feedback need to be collected after upgrade, the system is also need to be adjusted and optimized in time. Through a standardized software update and upgrade process, the stability and security of the Wise Information Technology System of Med can be ensured while meeting the changing business needs.

4. Conclusion

The development of Wise Information Technology of Med has brought unprecedented opportunities to the medical industry, but also put forward higher requirements for computer programming skills and maintenance. With the constant progress of technology, Wise Information Technology of Med will continue to deepen the integration with computer programming to provide patients with more accurate and efficient medical services. Continuous learning and updating of programming knowledge, as well as strengthening system maintenance practices, will be indispensable capabilities for medical professionals to make greater contributions to human health industry.

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