Discussion on the requirement analysis of software project development

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Abstract

In the project of developing software, requirement analysis is an important factor which relates to the outcome of software development project. Nowadays, the expenditure on redoing comprises a great part of the total expenditure in software development project and the major reason for such problem is the uncertainty in requirement analysis. According to this problem, this paper detailed the task, the process, the method, the alteration issue of requirement analysis and the measures in ensuring the quality of requirement analysis.

Keywords ： Software development; Requirement analysis; Prototyping; Requirement alteration

1.Preface

With the speeding up of the global economy, science and technology rapid development and the process of social informatization, computer is widely used in various industries, various application software came into being, management or production of the industry increasingly single-minded, digital, fast. So users are more complex and strict requirements of computer software. Software requirements analysis is the solution to the needs of users, software requirements analysis is an important factor in the success or failure of software project development. Data show that the present software project rework costs accounted for almost half of the total development [1], and rework caused the main reason is the demand analysis is not clear, even some people don't know what is the demand analysis, causing the project to a series of changes. These changes can lead to a waste of a large number of resources, software projects can not be completed on time and other serious problems. So, requirement analysis is the foundation of the software design and realization, and it is the first step to the success of the software project!

2.The task of software requirement analysis

The development of a software project is mainly divided into five stages: requirements analysis stage, design stage, encoding stage, testing phase and maintenance phase. The results obtained from the phase of the demand analysis are the necessary conditions for the other four stages of software project development. From past experience point of view, the need for analysis of a small deviation, it may lead to the entire project can not achieve the desired results, or that the final product development is not required by the user. Software requirement analysis. Give an example to illustrate, for the construction of the house this problem I believe most people know, with the user to build a house, the house will be discussed in detail with the user a variety of details, how high the floor? How is the frame? Drawing styles and so on, each link has a detailed process documentation, the two sides are aware that if the completion of the changes brought about by the loss and change the details of the harm. Also in software requirement analysis also needs to have detailed documentation, software developers to from business users extract software system can help users to solve business problems, through the analysis of user business issues, the developer of the software products. This step is to user business needs a Hua Sheng is a user service management process optimization, into software products so as to raise the management and achieve a

qualitative leap, which step is successful, is directly related to the developed software products can users get the recognition, successfully delivered to the customer, the customer can actually use the product developers to help him to solve the business or management problem [2]. The task of software requirement analysis is not to determine how the system is done, but to make sure that the system must complete the work, which is to put forward a complete, accurate, clear and specific requirements to the target system. Its work is to describe the function and performance of the software, determine the limit of the software design and the interface between the software and other systems, and define the validity of the software. The task of software requirement analysis is to derive the logical model of the target system based on the logic model of the current system, and solve the problem of "what to do". In fact, the following steps are: to obtain the physical model of the current system; to abstract the logic model of the current system; to establish the logical model of the target system.

2.The process of software requirement analysis

The process of software requirement analysis can be divided into specific to problem identification, analysis and synthesis, system specification and evaluation. Problem identification is a system analysis researchers feasibility analysis report and software project implementation plan, determine the overall requirements of the target system, and puts forward the demand conditions, and should reach the standard. These requirements are divided into: functional requirements and non functional requirements, the specific functional requirements include: lists the software functions on what should be done. The performance requirements are: technical performance index of the software, such as storage capacity, operation time limit, security etc.. 3 environmental requirements: system software runtime environment, such as hardware: models, an external device, a data communication interface. The software: system software, including operating systems, network software, database management system on; use: use department in the system, the operating personnel technical level should have what conditions. 4 reliability requirements: on the software fault does not occur after put into operation, the probability, according to the actual operating environment request. So for the important software, or operational failure will cause serious consequences, should request higher reliability. The security and confidentiality requirements: should the appropriate make provisions, for the developed software to give special design, the in operation, the security performance are necessary to ensure. The user interface requirements: user interface detailed provisions to the requirements. Use the resources demand: various resources development software needed at runtime and development. The software cost consumption and development progress demand: in the software project, according to the provisions of the contract, the schedule of software development and the steps of the cost of the proposed requirements as a basis for the development and management. To pre estimate the system goal, making it easier to add and modify the necessary system. In addition to these essential requirements, another work of problem identification is to establish an analysis of the communication channels needed to ensure that the analysis can be carried out smoothly. The goal of analysis and synthesis is to give the detailed logic model of the target system. In this step, the analysis and comprehensive work need to be carried out repeatedly. For the preparation of needs analysis documents, we call for

software requirements specifications, in addition to write the software requirements specification, but also to develop data requirements specification and the preparation of preliminary user manual documentation requirements analysis description. Demand analysis review is the final step in the demand analysis, the correctness, completeness and clarity of the system functions, as well as other needs to be evaluated.

3.Software requirement analysis method

Software requirement analysis methods such as traditional method, prototype method, model driving method, oriented data structure of data structured system development method, choose the kind of method should be based on what resources in what time to developers effectively can not be applied blindly. This paper focuses on the methods of the original type. The traditional software engineering method emphasizes the development of the top-down phase, which requires strict definition of requirements before entering the actual development period. However, practice shows that before the system is set up in difficult to closely rely on the analysis determines that a complete, consistent and effective application requirements, and the predefined strategy more can not adapt to the ever-changing needs of customers situation. Thus, the prototype approach emerged, it is an anti traditional top-down development model, is currently more popular with the use of the development model.

4.Requirement Change

SIn the development of the project process, the user will always put forward some new requirements, require developers to solve these requirements, and sometimes in the development stage, sometimes in the development stage. This in the demand analysis of two adjacent sub stages, or in iterative cycles of demand analysis, period or cycle requirement analysis result and before time inconsistent, we put this inconsistency is known as a change in demand. The reasons for the change of demand mainly include the following aspects: 1. In the demand analysis stage, the communication between the developer and the user is not enough. In the demand analysis stage, the developer and the user does not have a good communication, the developer is based on the information provided by the user, the user needs to derive their own. Through this demand analysis, the demand is often far from the actual needs of users, resulting in changes in demand. The implementation period of the project is too long. With the push of time, the user's understanding of the entire system is also getting deeper and deeper. They will put forward higher requirements on the interface, function and performance of the module. Technology update too fast. Due to the rapid technology update, the enterprise may introduce some new devices, and these devices may target of will and our aim system has a direct relationship, due to the changes that may occur in the solution to the user of the original problem before or, then the developer to join this new demand. In order to avoid the need to change as much as possible, and to ensure the high stability of demand analysis, you can use the following methods: 1. Because developers on the development in the field of system does not necessarily have to understand, in order to developers can better understand the user's needs, in the initial stage to do needs analysis for developers of related knowledge in the field of training. Developers and users to collaborate and communicate. When the user needs to change the development of the people should be careful to listen to the user's requirements and to be sorted and analyzed. Analyze the reasons for the change of

demand and put forward the feasible alternatives; and explain to the user that these changes will bring about the adverse consequences of the development of the whole project. Contract constraint. As a result of changes in demand may have an impact on the entire project, so developers and users in the signing of the project contract, you can increase the demand for changes in some of the relevant provisions of the contract. The establishment of requirement documents and version control. The final result of the demand analysis is a document of a consensus on the products developed by the customer and the developer. With this document, even if the developer's role has changed, it will not have an impact on the demand analysis of the preliminary work. Use a new version to identify each of the changes in demand. The needs assessment and the establishment of the baseline requirements. In order to allow the parties to develop a detailed understanding of the user's needs, let different people from different angles of requirements verification, as author of a demand, in the needs assessment process, users tend to put forward many valuable opinions. At the same time, is also the user needs to make the final confirmation of the opportunity, you can effectively reduce the occurrence of demand changes. After the requirements are reviewed and approved by the official, the need to determine the baseline, further changes in demand will be based on the baseline, in accordance with the project definition of the change process. Setting the requirements baseline can minimize the changes caused by the changes.

5.Conclusion

In this paper, through the analysis of the software requirement analysis, to explain the software requirement analysis is the foundation of the software design and implementation, it is very important for the whole software project. If scientific needs analysis, using some technology to avoid possible lead to the failure condition of demand analysis, round successfully completed software requirements analysis tasks, for subsequent software development to lay a solid foundation.

6.Reference

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