Software Development Processes

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Abstract

In this paper, the main problems of the quality management in the process of software development are studied. This paper firstly summarizes the basic content of software quality management, then analyzes the common problems in current software development, the design quality management system based on the software life cycle, and improve the quality of software development are also discussed in the other management measures.

Keywords: software development, quality management: the software life cycle

1 the basic content of software quality management

1.1 the concept of software quality management

Software development organizations to give himself provide users of software products to achieve and maintain a certain quality level, strict quality management is a must. Software quality management is in the process of software development to carry out the quality of the following activities: to establish quality assurance system, determine the responsibility and authority of each position, and make it effective quality assurance plan, determine the quality policy and quality objectives; Quality control measures, error detection and correction software.

1.2 the content of the software quality management

Software is different from the hardware production features an intangible product, easy to change complex, difficult to measure control, maintenance. If just rely on the developer in the software development process of individual creativity, and does not establish a standardized management system, there is no strict production quality control in the period of software, will be difficult to ensure software quality. Software is the main content of the quality management in software development organizations to carry out the quality of the following activities: to establish quality assurance system, quality assurance plan, the quality control measures, we will be referred to as software quality assurance activities.

1.3 the software life cycle model

As the general characteristics of engineering, software products and other industrial products, software also have an inoculation, the survival of the birth, growth, maturity, and decline process, people call it the survival period of computer software. National standard GI38566-88 "standard of computer software development" will software life cycle is divided into eight stages: feasibility analysis and planning, requirement analysis, system overall design, detailed design, implementation (including unit tests), assembly testing, validation testing, use and maintenance. This part makes the software development process of the invisible visible, also divided the checkpoint, provide the basis for the review.

2. The quality problem of the widespread in

current software development

2.1 demand analysis is not clear

Make the software quality is difficult to grasp one of the most important factor is the software requirements. Developers and users and business personnel communication may be inadequate. User can't start the demand is very clear and full, developers understand the problem at the same time, even wrong.

2.2 development process more chaos

Many software development work in stages according to the requirement of the software engineering, in order to catch up, often on one phase of the work is not over, can't wait to start the next stage of work, even demand has not yet completely sure, programming has begun. Develop software products, the lack of systematic and scientific, there is no guarantee that the quality of its.

2.3 quality management work progress difficult

Now many software development organizations are yet to product quality responsibility. If software development manager for delivery of the software contains many hidden fault is not negative what responsibility, so they must not how high enthusiasm to control software quality, the quality is not to mention it is not easy, and ensure the quality is expensive. In addition, many did not quantify software quality indicators. Software development managers tend to be more concerned about project cost and schedule, because of cost and schedule is obvious, and easy to measure.

3 the analysis of the causes of quality problems in software development

1) not enough very clear understanding of the software life cycle model
2) the development process is not standard
3) the lack of quality management training

4 Based on the quality of the software life cycle management system design

4.1 scientific software development progress plan

Project schedule is defined project, manpower, cost, resources, time and work plan summary, to define the logical sequence of each work in the project. To improve the project schedule is mainly around these problems in the project definition, task, manpower, time and work order to readjust and allocation. Task decomposition (WBS) is the first step to make the project schedule plan, is the embodiment of the work scope. Task decomposition is to gradually thinning of the entire project, finally get the following items: the serial number of the task; Task name; The time required for; Front task (i.e., where a task must be completed before start); Key map (CPM) with particular emphasis on the key activities and the activities that need some amount of time to complete, critical path is the total time to zero in the network diagram of the longest route. No jet lag since the mountain on the critical path, so once there is a problem, if you don't do the adjustment, will delay the construction period. On the other hand, if shorten the length of the critical path will shorten the construction period, save time.

4.2improve the system of review

The output in the process of software development are mostly exists in the form of a document, as a result, the object of the review are also commonly document. Commonly encountered under the two cases, the need to review: < 1 > never formally review the new document. In this case, the entire document to review; < 2 > made some changes to existing document. In this case, do not need to review the entire document, as

long as you review the modified parts and associated with it. Different evaluation need different people to participate, according to the staff involved in the Review, the Review can be divided into level across Review Review (Cross) and Peer Review (Peer Review). The Cross level reviews often is suitable for the need to do some decision, need the support of superiors, and Peer reviews applied to was only a matter of technology Review, is to detect defects in software work products.

5 Other management measures to improve software development quality control

5.1 strengthen the software personnel quality concept

Quality management activities needs full participation, especially top management's attention. Set up a corresponding software quality assurance organization, clear organizational structure, responsibilities.

5.2 strengthen the management of the document

Software development teams should set a document administrator, is responsible for the centralized storage in this project have two sets of main text documents. In the new document to replace the old document, management personnel shall timely cancel the old documents, and ensure the main text is the latest version.

5.3 arrange configuration testing

In order to ensure the smooth progress of testing work, we must set up an independent of the software development team of the testing team. The test team's main duty is to expose errors in the software development and software design. Keep the independence of the testing team, can be ruled out during the test the developer may encounter psychological 'conflicts of interest '', which can guarantee the most people limit found

error. Test group on the basis of software test specification documents, test plan, design test case, test work and results analysis, and submit the test report. While maintaining the independence test team, to establish a scientific and effective quality assurance system, lest cause unnecessary disputes.

6 the conclusion

In the new era of knowledge economy, knowledge management, as a kind of knowledge as the carrier of the new management mode, better educated and more professionally competent even more highlighted. In a document, in the tide of integration of documents and archives in the staff and the new starting point, their qualities, ideas, innovation ability, to grasp the new things, understanding and using ability, develop into ability, courage and perseverance to overcome the difficulty, all have important effects on the integration of document management.

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