Software Development Processes

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Abstract

Advanced manufacturing model requires information integration and functional integration throughout every stage of product life cycle,functional integration needs the support of software systems,thus promoting the implementation of advanced manufacturing mode.software development process is to build software solution for key element.this paper discusses the process of developing two main methods,namely object-oriented methods and structured methods.

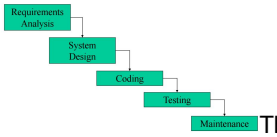
Keywords: software development process, object-oriented method, structured methods, risk assessment

1 Introduction

Software Process is the set of activities, methods, and practices that are used in the production and evolution of software. Software Process Model is one specific embodiment of a software process architecture.

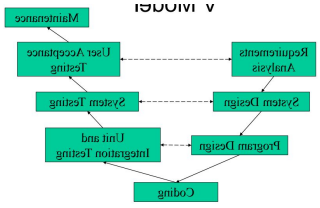
2 Software Process Models

Waterfall Model



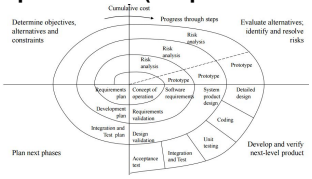
The waterfall model is based on the core idea of simplifying the process to issue, will be achieved with the design features of separate, easy to division of labor, that is, the use of structured analysis and design methods to implement logic and physical implementation separately.and waterfall model is classical,one-shot approach,effective control,limited scope of iteration,long cycle time,and not suitable for system of high uncertainty.

V Model



V Model is the software development process is an important model, because of its shape model patterned letter V, so called V model of software development. It shortens development cycles by means of development and testing at the same time, improve development efficiency.

Spiral Model (adapted from Boehm 1987)



Spiral model is a software development process model evolution, it is both systematic and rigorous monitoring of the characteristics of rapid prototyping and iterative waterfall model. Four major activities（Planning，Risk analysis，Engineering，Evaluation）

Prototyping Model

benefits (Learning by doing,Improved communication,Improved user involvement,Clarification of partially-known requirements)

3 Overview

Software Process Model is one specific embodiment of a software process architecture.

4 Advantages/Cons

Waterfall Model

Waterfall model conducive to the organization and management of large-scale software development process, personnel, research and favor the use of software development methods and tools to improve the quality and efficiency of large-scale software development projects.But Waterfall model has serious flaws. ① due to the development model is linear, so when development efforts have not been tested, the user can not see the effect of the software. Such software with the user to meet the time interval is longer, but also adds a certain risk. Error ② software development before the end of discovery to a following development activities, may spread, which may cause the entire software development projects fail. ③ in software requirements analysis phase, all fully determine the user's needs is difficult, and even can be said to be unlikely.

V Model

Advantages: Corrected people do not pay attention to the importance of the testing phase of misconceptions, test grading, and the previous stages of development correspond.
Cons: still test as a separate stage, and there is no model to improve the ability to resist risks.

Spiral Model

Compared with the waterfall model, the spiral model to support dynamic user needs change, for all users to participate in key decisions in software development to provide a convenient, help to improve the ability to adapt to the target software. And it facilitates timely adjustments to the project management staff management decisions, thereby reducing the risk of software development. But we can not definitely say that the spiral model is superior than the other models, in fact, this model also has its own disadvantages as follows. ① spiral model needs to have a wealth of experience and expertise in risk assessment, risk large project development, if not timely identified risks will inevitably result in significant losses. ② too many iterations will increase development costs and time delay submission.

4.1 Project

Waterfall Model
It applies to demand clear, clear project solutions

V Model
It is similar to Waterfall models, but higher project performance and safety requirements.

Spiral Model
t applies to large, complex and high-risk systems.

5 Conclusion

Software Process Model is one specific embodiment of a software process architecture.

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References

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