Software Development Process

13211204 金一
ZheJiang Normal University
Software Project Management

Abstract

Good Preparation is a good beginning,and a good beginning is a half of a success.A project has its own life cycle.When software developers start to develop a project,every step they do becomes crucial.Therefore,It is necessary for us to learn the knowledge about software development process.This report introduce you something about the application of project management technology in the process of software development process,thus sincerely hope it can play a bit of value to you.

Keywords: life cycle , software development process

1 Introduce

Software development process is a set which convert the requirement from users to activity which software need,including members,products,process and so on. Likes such project work,which presents a challenge to traditional plan,organization and control of management method.The activity that software development process need modern project management and organizational methods.In the face of the severe time and resource constraints,members should try their best to achieve the difficult goal.As a unique field of management practice,project management plays an important role in the software development process.

*email:978517671@qq.com

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Author Name:Yi Jin
University:ZheJiang Normal University
Title:Software Development Process

The Software Engineering Institute and Watts Humphrey brought effective process specification and process assessment technique to the forefront in the late 1980s. However,process assessment is much like assessing safe streets.We all know what we want,we recognize a safe street when we see one,but they are specify and measure precisely.In practice,software process assessment is best performed with a combination of accepted formal methods, measurements,and project team input.The inclusion of the task may be necessary to form a theoretically effective process [1] .It is necessary for us to know the software development process.

2 Related Work

Software process is the set of activities,methods,and practices that are used in the production and evolution of software.As the same time,Software Process Model is a specific embodiment of a software process architecture. Waterfall Model,V model,spiral model, prototyping model and so on are software process models.Take waterfall model for example, see the figure1,the process of development can be requirements analysis, system design, coding,testing and maintenance.We can quite understand the steps we should do.Project management key stages includes initiate,plan execute,close.At first,we can make a project schedule which is a calender that links the tasks to be done with the resources that will do them.

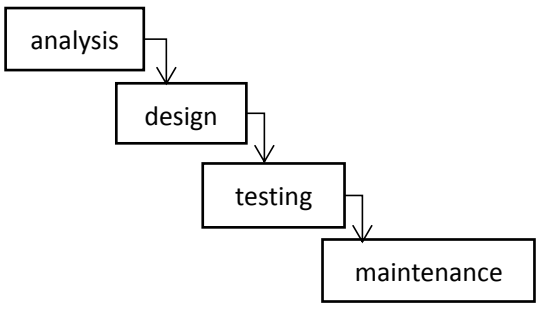

Figure 1: The model of Waterfall

Then we can learn something about prototype model.Its goal is to meet user requirements at an early stage and reduce risk and uncertainly.As for the classification of prototype,we can see the following:

- Throw-away After users agree the requirements of the system,the prototype will be discarded.
- Evolutionary Modifications are based on the existing prototype.
- Incremental Function will be arranged and built accordingly.

We can see the simple picture like Figure 2.

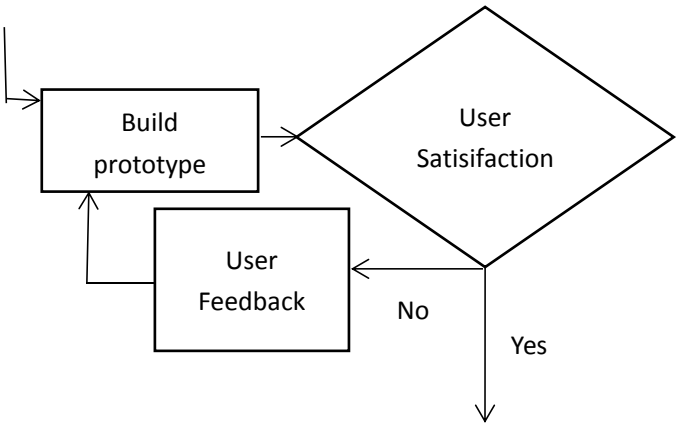

Figure 2: the model of prototype

Figure 2 shows us the process of developing a project in prototype model.It can improve the communication and user involvement.

Prototype model has some advantages:

- Demonstration of the consistency and completeness of a specification
- Reduces need for documentation
- Reduced maintenance costs
- Feature constraint
- Production of expected results for testing real system

RUP(i.e.Rational Unified Process) is an object-oriented and web-based application development methodology.As for software life cycle,it is divided into four stages: inception, elaboration,construction and transition.Each phase is end with Major Milestones.At the end of the each stage performs a assessment to determine whether the goal of this stage has been satisfied.If the result of evaluation is satisfying,people can allow into the next part of the project.

3 Overview

It is known that before whatever things we do,we should analyze deeply to judge whether it is worthy to do.First,we should consider time,cost,members,technique,risk and other elements to judge the feasibility of project.Let us talk about economic feasibility.Can remember clearly learned an analysis method of cost benefit from a book,introduce you the deepest impression way here to you. Net-Present-Value is the total present value of future payments minus the original input,which is a commonly used project evaluation method.Its computation formula is as follows(e.g.,Equation 1):

$$\mathrm{NPV} = \sum_{t=1}^{n} \frac{F_t}{(1+k+r_t)^t} - p_0 \qquad (1)$$

Then,the formulation of the project plan is one of important steps.schedule is a part of it.Making WBS into a schedule can produce a great effect. Gantt chart shows tasks, dependencies and milestones using different shapes.What's more,the execute of the project is a top priority.Members should try take their own responsibility to make the project better and better.Leaders must manage the operation of the project from different aspects likes quality management, risk management,speed management,cost management.If the project works done,testers should test the project whether satisfy the requirement from users.At last,close the project if it has been finished.

4 Methods/Techniques

- Simple Sequencing [3] is one of the scheduling techniques which is suitable for small projects especially for allocating individuals to particular tasks at an early stage.On the other hand, Critical path method is suitable for large software projects which commonly used "networking" technique.Simple Sequencing is a simple sequencing of the tasks and the responsible personnel taken into account of the resources and presented easily in a simple bar chart. What are primary objectives of CPM?CPM can plan the project so that it can be completed as quickly as possible and identify those activities where their delays is likely to affect the overall project completion date.
- There are three different types of software risk:project management risk,technique risk and product quality risk [2].

1) Project risk refers to the potential budge, members, progress,resources,users and requirements and other aspects of the problem which will threaten the project plan,affect the progress and increase cost.
2) Technical risk refers to the potential of the program, architecture,analysis,design,interface,implementation,testing and maintenance issues,which will affect the quality of the software system.
3) Product quality risk refers to the risk caused by the quality of the software,involving all kinds of defects,errors and so on.

Three kind of risk are related.Risk are exited in the process of software development,some of which are unexpected or difficult to estimate.

5 conclusion

Software development process is a collection that will translate the requirement from users into the activities which software need.Different development models also have different development steps.With the development of software development team,developers should learn to apply the idea of software project management to the practice,so that,the efficiency of the software development will be higher and the result will be better.

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I sincerely acknowledge that you read my whole report.

References

[1]Joel Henry,Software Project Management :A Real-World Guide to Success. *www.sciencep.com,2004.*

[2]Nooyr Davis,Humphrey Watts S,James McHale.Using the TSP to accelerate CMM-based software process improvement[R].*Pittsburgh:SEI Carnegie Mellon University*,2001.

[3]Bob Hughes and Mike Cotterell .Software Project Management(Second Edition).*School of Information Management ,University of Brighton.1999*

[4]T Hoppe,M Rape,S Jentsch. Membrane-bound transcription factors:regulated release by RIP or RUP. Current Opinion in Cell Biology, 2001, 13(3):344-348