

Software Development Processes

Author name:ChengLuJie

Zhejiang Normal University

Software project management

Abstract

Since the original software development, constantly have new software development technology, but it always exists in the software development capability and quality of the short of the expected goals. The biggest goal, every software development is to maximize the quality and productivity. And the three key factors that affect the quality and productivity, process, and technology, therefore, we in addition to improve the technical ability, develop more excellent talents, also need to develop a software development process management standards, and in the process of software development for the standard constantly improve, improve software quality and productivity in order to achieve goals.

Keywords: The software development process, management standards

Introduction

Software development is according to user requirements to build the software system or system software part of the process. Software development is a including requirements capture, requirements analysis, design, implementation and testing of systems engineering. Software is typically implemented in some programming language. Usually the use of the software development tools can be developed. Software is divided into system software and application software, not only including can run on a computer program, documents related to these programs are generally considered a part of the software. Software design thought and method of general process, including the function and implementation of algorithm and method of design software, the general structure design and software module design, programming and debugging, alignment and testing, and write, submit the application.

Why do we use software development? The aim is for the sake of what, one of the main reason is to provide customers value growing demand for software. Basic fundamental lies in the user needs and marketing objectives must be created or convert good software applications. So in essence, software development is that it allows end users to perform he wanted to do tasks.

A prosperous inevitably lead to higher at other stages. As a result, many companies are providing software development projects. As the new development of the world in the process of exploration, software development will be unlimited growth. This is how many software development method in the world today. Enterprise website construction application must be provided including a series of complicated machine including many industry types for different purposes, and almost anything you can think of.

Periods of software develop processes

Software development in general is divided into six stages:

1. The problem of definition and planning

On the general definition for the problem to be solved, including the knowledge of the user's requirements and real environment, from the technical, economic, and social factors in three aspects, such as research and demonstrate the feasibility of the software project, write the feasibility study report, discusses the solutions to solve the problem, and the available resources (e.g., computer hardware, system software, manpower, etc.) cost, can make an estimate of the benefit and progress, make the plan of the implementation of the complete development tasks.

2. Requirement analysis

Software requirements analysis is to develop a what kind of software system analysis and ideas. It is a pursuit of the user's needs, the true, understanding, and then put it in the software engineering development language (form function specification, the requirements specifications) expression of the process. The basic tasks of this stage is to determine the problem to be solved, and user software logical model is set up, write the specification document and eventually recognized by users. Demand analysis of the main methods are structured analysis method, data flow chart and data dictionary, etc. This phase of the work is according to the requirement of the requirements specification, design to establish the corresponding software system architecture, and the whole system is decomposed into several subsystems or modules, define the interface relationship between subsystems or modules, carries on the detailed design of each subsystem definition, software summary design and

detailed design specifications, database or data structure design specifications, assembly test plan. In any software or systems development initial stage must fully grasp the user needs, in order to can be followed in the process of system development which function to carry out the set, what specification and what limits should be preferred to locate them. Systems engineers eventually will be completed on the basis of design, on the basis of the subsequent application development, system function and performance of a description of the definition and limit.

3. The software design

Software design can be divided into two stages of general design and detailed design. The main task of software design is actually the software is broken down into modules can realize some functions of data and program instructions, executable program unit. Can be a function, process, subroutine, a program indicating independent programs and data, can also be a combination, decomposition and the function of the replaceable unit. Module, and module design. Profile design is structure design, its main goal is to give the software module structure, using software structure diagram. First task is to design the module of the detailed design of the application process, the algorithm and data structure, the secondary task is to design a database, the commonly used method is structured programming method.

4. The program code

Software coding is that the design of the software into the computer can accept applications, namely written as expressed in one programming language source program listing. Fully understand the characteristics of software development languages, tools and programming style, help the selection of development tools and ensure the quality of the development of software products.

Except on special occasions, in current software development has rarely used in the 80 s of a high-level language, instead of object-oriented development language. And object-oriented development language and development environment are combined into an organic whole, greatly improve the speed of development

5. Software testing

The purpose of software testing is a small price to find as many mistakes. To achieve this goal is the key to design a good test case, test data and the function and the expected output results of the test cases). How can you Design a set of test cases, is the key to understand the test method. Different test methods have

different methods of test case design. Two kinds of commonly used test method is a method of white box testing object is the source program, on the basis of the logical structure of internal is a program to find the software programming errors, structure and data errors. Logic errors include structure, data flow, initialization error, etc. Case design key is fewer cases to cover as much as possible within the program logic. The white box and black box method is based on the function of the software or software behavior description, found that the software interface, function and structure of the error. Interface errors including internal/external interfaces, resource management, integration, and system error. Black box method case design key is also cover with fewer cases module output and input interface.

6. Software maintenance

Maintenance refers to the completed the software development (analysis, design, coding, and testing) work and after consign is used, and some of the software engineering of software products by activities. Namely according to the software running situation, to make appropriate changes to your software, to adapt to the new requirements, and correct errors found in the running. Write software problem reports, change the report.

A medium-sized software, if developed stage need a year to two years of time, after it put into use, its operation or work time can last five to ten years. Then its maintenance phase is running during the five years to ten years. In this period of time, people almost need to address development stages have encountered various problems, but also solve some maintenance work itself unique problems. Do a good job in software maintenance can not only overcome obstacles, make the software to work, but also can make it extend the functionality, performance, bring obvious economic benefits for the user. Unfortunately, however, to the attention of the software maintenance is often far less attention to the software development work. And, in fact, compared to software development, software maintenance workload and cost are much larger.

In actual development process, software development were not at the last step in the first step, but at any stage, before entering the next phase is generally one or a few steps back. Problems in the process of testing may be required to modify the design, the user may put forward some need to modify the requirements specification, etc

School of continuing education, Shanghai maritime university graduation thesis management software development process

The environment / techniques

1. development platform

Software development platform is the result of tedious practice during the development process. Developers will commonly use functions in practice, class, abstract, interface and so on. Carries on the summary, encapsulation, became the reusable "middleware", as "middleware" mature and universal, more powerful, more can meet the needs of enterprise customers - software development platform arises at the historic moment.

Platform is a scientific research achievements of convergence over a period of time, is also a sign of staggered plateau, provides a basis for industry into a new development. Due to the platform to the enterprise core competitive ability of ascension is very apparent, the current domestic management software market, the application of software development platform has become a trend.

As a result of the development environment, developers, function orientation and industry background, different, different brand platform is put in bigger difference.

2. Environment

Software development Environment in Europe is also called Integrated Project Support Environment (Integrated Project Support Environment, IPSE). Main components of software development environment is a software tool. Man-machine interface is a software development environment and a unified interactive dialogue system between the user, it is an important quality of software development environment. Storage software produced by various software tools machining products or semi-finished products (such as source code, test data and various documentation, etc.) of the software environment database is the core of the software development environment. The relationship between tool and understanding each other is through Shared data stored in the database is implemented.

Software development environment database is for software workers the knowledge information database, its data object is diversified, with a nature of intelligence. Software development database used to support a variety of software tools, especially design tool, the compiler automatically such as active or passive work.

Common mistakes

Nowadays, most software development unit, the lack of good

system analyst and project management personnel, the lack of the project administrators, systems analysts and programmers of good team structure, tend to have a team of software development project is a temporary organization, team members did not work in the level of division of labor, less management and the specific technical work of the division of labor. Staff work in essentially the same, each division is responsible for a piece, and then from the user requirements, system design, the concrete programming to the test, the document writing do all in the end, each dry, tend to be a programmer, head of the project team, with no project management professional training, more have no experience in project management, of course also cannot really is a perfect project management, coordination effect.

Most of the systems analyst, too much, and the programmer is although have participated in or big or small to experience, but in fact they are to learn the latest theory of computer technology, combined with their own programming and experience as a project to do analysis and design. Without system under the condition of the practical theory of knowledge, a lot of our projects are faced with management problems, at least not to obtain the high efficiency of input and output

REFERENCES

Programs, life cycles, and laws of software evolution

MM Lehman - 《Proceedings of the IEEE》

Correction to Programs, life cycles, and laws of software evolution

MM Lehman - 《Proceedings of the IEEE》

[Structure of the enamel surfaces of permanent human teeth under the scanning electron microscope].

H, Wegner , H, Schneider - 《Software Engineering IEEE Transactions on》

Connecting Business Modelling to Requirements Engineering

AG Sutcliffe, G Li - 《IEEE Transactions on Software Engineering》

A Systematic Look at Prototyping

C Floyd - Approaches to Prototyping

Programming as theory building

P Naur - 《Microprocessing & Microprogramming》

Software engineer's reference book /

J Mcdermid, P Rook, J Mcdermid, ... - 《European Journal of Cancer》

Software engineer's reference book

J Mcdermid - CRC Press, Inc. - 1993 -

Artifacts in Software Design

R Keil-Slawik - Software Development and Reality Construction -
1992 -

Apparatus and method for multi-aspect simulation

MJM Crisp - US - 2012 -