Software Development Processes

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Abstract

A software development process or life cycle is a structure imposed on the development of a software product. There are several models for such processes, each describing approaches to a variety of tasks or activities that take place during the process.

Keywords: structure,models,describing approaches

1 Introduction

In software engineering, a software development methodology (also known as a system development methodology, software development life cycle, software development process, software process) is a splitting of software development work into distinct phases (or stages) containing activities with the intent of better planning and management. It is often considered a subset of the systems development life cycle. The methodology may include the pre-definition of specific deliverables and artifacts that are created and completed by a project team to develop or maintain an application.

2 History of Software Project Management

The software development methodology (also known as SDM) framework didn't emerge until the 1960s. According to Elliott (2004) the systems development life cycle (SDLC) can be considered to be the oldest formalized methodology framework for building information systems. The main idea of the SDLC has been "to pursue the development of information systems in a very deliberate, structured and methodical way, requiring each stage of the life cycle—from inception of the idea to delivery of the final system—to be carried out rigidly and sequentially"[2] within the context of the framework being applied. The main target of this methodology framework in the 1960s was "to develop large scale functional business systems in an age of large scale business conglomerates. Information systems activities revolved around heavy data processing and number crunching routines".

Methodologies, processes, and frameworks range from specific prescriptive steps that can be used directly by an organization in day-to-day work, to flexible frameworks that an organization uses to generate a custom set of steps tailored to the needs of a specific project or group. In some cases a "sponsor" or "maintenance" organization distributes an official set of documents that describe the process. Specific examples include:

3 Overview

Common methodologies include waterfall, prototyping, iterative and incremental development, spiral development, rapid application development, extreme programming and various types of agile methodology. Some people consider a life-cycle "model" a more general term for a category of methodologies and a software development "process" a more specific term to refer to a specific process chosen by a specific organization. For example, there are many specific software development processes that fit the spiral life-cycle model.

4 Methods/Techniques

Prototyping

Software prototyping, is the development approach of activities during software development, the creation of prototypes, i.e., incomplete versions of the software program being developed.

Incremental development

Various methods are acceptable for combining linear and iterative systems development methodologies, with the primary objective of each being to reduce inherent project risk by breaking a project into smaller segments and providing more ease-of-change during the development process.

Iterative and incremental development

Iterative development prescribes the construction of initially small but ever-larger portions of a software project to help all those involved to uncover important issues early before problems or faulty assumptions can lead to disaster.

Lightweight methodologies

A lightweight methodology has a small number of rules. Some of these methodologies are also considered "agile".

Code and fix

"Code and fix" is an anti-pattern. Development is not done through a deliberate strategy or methodology. It is often the a result of schedule pressure on the software development team.Without much of a design in the way, programmers immediately begin producing code. At some point, testing begins (often late in the development cycle), and the unavoidable bugs must then be fixed before the product can be shipped. See cowboy coding.

5 Conclusion

Software development process is software design idea and method of general process, including the function and implementation of algorithm and method of software design, the general structure design and software module design, programming and debugging, alignment and testing, and write, submit application and a series of operations.

Acknowledgements

I would like to thank my colleagues and reviewers for taking time out of their valuable schedule to help make this report more concise and clearer.

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Software Project Management (2016/17)
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