Chapter III

Software Review Tools and Technologies

Abstract

This chapter presents software review tools and technologies which include: paper-based vs. tool-based software review, collaborative asynchronous vs. synchronous software reviews, applying software review tools in the software review process, paper-based and Web-based reviews tools, evaluation of asynchronous and synchronous design, and comparing software review tools features. This chapter also presents the software review tools can monitor and improve software review process, especially in a group review process. The final section of the chapter presents a knowledge centric software framework for building tools that perform software review, analysis, and transformations.
Introduction

A number of computer support tools have been developed to support the software review meeting process (Halling, Biffl, & Grunbacher, 2002). Many tools provide documentation facilities that allow software review documents to be shared across networks, browsed online, and edited by reviewers (Anderson, Reps, & Teitelbaum, 2003; Anderson, Reps, Teitelbaum, & Zarins, 2003; Chan, 2001; Gintell, Houde, & Mckenney, 1995; Harjumaa, Hedberg, & Tervonen, 2001; Johnson & Tjahjono, 1997; MacDonald & Miller, 1999; MacDonald, Miller, Brooks, Roper, & Wood, 1995; Miller & Macdonald, 1998, 2000; Perpich, Perry, Porter, Votta, & Wade, 1997; Stein, Heimdahl, & Riedl, 1999; Tyran & George, 2002; Van Genuchten, Cornelissen, & Van Dijk, 1997, 1998; Van Genuchten, Van Dijk, Scholten, & Vogel, 2001; Vermunt, Smits, & Van Der Pijl, 1998).

The current trend of software review is for using software review tools to support software review process. Past research has shown a spectrum of advantages of using software review tools supporting technical review. First, a computer-support tools review environment can reduce paper works and clerical costs, decrease error rates of recording review meeting and comments, and allow computerised data collection and data analysis.

Software review tools can integrate the review method with other components of the specific software development method such as asynchronous review and facilitating both metrics collection. Companies will adopt software review tools simply because of such potential benefits over manual software review techniques (Radice, 2002).

Paper-Based vs. Tool-Based Software Reviews

The traditional Fagan software review is a paper-based review. All of the information record and dissemination are relied on the paper. During every defined meeting, all members work together and discuss the defect they found in the same place, so that the tool support is not a major concern, even though there are some tools for paper-based review. On the other hand, some project teams can not find suitable tools to support their modern distributed software engineering projects so they have to either select whole paper-based review or construct tools with unique features for new software reviews (Hedberg & Harjumaa, 2002).
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