Chapter IV

How Software Review Tools Work

Abstract

There are many software review tools for supporting the software review process, particularly in a group review. This chapter presents an overview of common software review tools and discussions on how these tools work in software review process. A number of software review tools will be discussed in this chapter. These include: Intelligent Code Inspection in a C Language Environment (ICICLE), Scrutiny, Collaborate Software Inspection (CSI), InspeQ, CSRS, Requirement Traceability tool (RADIX), InspectA, Asynchronous Inspection of Software Artefacts (AISA), Web Inspection Prototype (WiP), Asynchronous/Synchronous Software Inspection Support Tool (ASSIST), CORD, Agent-based Software Tool, Web-based Software Review System, Internet-Based Inspection System (IBIS) and VisionQuest.
Intelligent Code Inspection in a C Language Environment (ICICLE)

The ICICLE (Intelligent Code Inspection in a C Language Environment) is the first published software review tool, which was developed at Bellcore (Brothers, Sembugamoorthy, & Muller, 1990). The ICICLE tool is designed to support code review and assists reviewers in both individual preparation and group meetings. ICICLE provides a synchronous communication support to group meetings. It has been argued that traditional code review meeting is manually documented (i.e., using paper and pen to record defects detected). This documentation procedure is very time consuming, tedious and could be inconsistent recording (Brothers et al., 1990). One of the aims of this tool helps software reviewers to find obvious defects.

Brothers and his team (1990) suggested that ICICLE provide several benefits to code review:

- To detect routine sorts of errors, with the goal of freeing the code inspector (reviewer) to concentrate on verifying the correct implementation of requirement, specifications, and designs.
- Offers various forms of knowledge about the code being inspected (reviewed), including domain and environment knowledge, and information from various forms of analysis such as cross-referencing.
- To allow code inspectors (reviewers) to easily traverse source code in a windowed environment instead of riffling thought hard copy from many different files.
- To render the code inspection (review) meeting paperless through a shared window interface which enables the code inspectors (reviewers) to fulfill their roles electronically.

The ICICLE tool consists of two phases in the review process, the individual review and group review meeting. The group review meeting takes in the same location/venue, usually a reviewers’ seat at nearby computers. Individual reviewer allows entering comments on each line of code. According to MacDonald, Miller, Brooks, Roper, and Wood (1995), the researcher found that “the computer supported meeting format appeared to cause substantial changes in the dynamics of the code inspection (review) meeting.” In other words, the procedures of the code review meeting using ICICLE can enable roles during the group meeting process (Brothers et al., 1990). For examples, addition duty of a moderator is to record statistics relating to coding defects discovered during code
CONFU: Configuration Fuzzing Testing Framework for Software Vulnerability Detection
www.igi-global.com/article/confu-configuration-fuzzing-testing-framework/46151?camid=4v1a