

AJcFgraph - AspectJ control graph builder for aspect-oriented software.

ABSTRACT

The ever-growing usage of aspect-oriented development methodology in the field of software engineering requires tool support for both research environments and industry. So far, tool support for many activities in aspect-oriented software development has been proposed, to automate and facilitate their development. For instance, the AJaTS provides a transformation system to support aspect-oriented development and refactoring. In particular, it is well established that the abstract interpretation of programs, in any paradigm, pursued in static analysis is best served by a high-level programs representation, such as Control Flow Graph (CFG). This is why such analysis can more easily locate common programmatic idioms for which helpful transformation are already known as well as, association between the input program and intermediate representation can be more closely maintained. However, although the current researches define the good concepts and foundations, to some extent, for control flow analysis of aspect-oriented programs but they do not provide a concrete tool that can solely construct the CFG of these programs. Furthermore, most of these works focus on addressing the other issues regarding Aspect-Oriented Software Development (AOSD) such as testing or data flow analysis rather than CFG itself. Therefore, this study is dedicated to build an aspect-oriented control flow graph construction tool called AJcFgraph Builder. The given tool can be applied in many software engineering tasks in the context of AOSD such as, software testing, software metrics, and so forth.

Keyword: Aspect-oriented software development; AspectJ; Control flow graph; Data flow analysis.