Reducing Complexity of Java Source Codes in Structural Testing by Using Program Slicing

Myint Myitzu Aung
myintmyitzuaung@gmail.com
University of Computer Studies, Mandalay, UCSM

Kay Thi Win
kthiwin11@gmail.com
University of Computer Studies, Mandalay, UCSM

Structural testing is one of the techniques of software testing. It tests only the structure of the source code while comparing expected results and actual results. Generally, structural testing takes a long time to perform its task and not possible. Sometimes, only a small portion of the program is relevant. This can be done by program slicing. Program Slicing is to decompose the program into smaller units that depends on different types of dependencies between the program statements. The different types of program slicing are forward slicing, backward slicing, complete slicing, dynamic and static slicing, etc. Moreover, there is Tree Slicing which is also a key technique to slice and merge different Symbolic Execution (SE) sub-trees under some specific conditions. In this paper, we combine Tree Slicing technique and Indus Kaveri where Indus is a robust framework for analyzing and slicing concurrent Java programs, and Kaveri is a feature-rich Eclipse-based GUI front end for Indus slicing. Then we present the experimental results in order to reduce the complexity of the java source code.