

Abstract

During the last two decades, Software Product Line approach has been applied by many companies due to its concepts of commonality and variability to provide product variety in a cost-effective manner. Yet, the effect of different amounts of component commonality on the perceived benefits from adopting SPL approach is not well understood. One reason is the absence of appropriate methods and useful analytical measures (i.e. indices) to assess the software product family based on commonality concept. This paper proposes an analytical tool, i.e. Software Component Commonality Index, to measure the amount of component commonality among a family of software products. In principle, it measures the amount of component sharing in the software product family based on the components of each product, their implementation, and connections. A software product line example from digital watch embedded software domain is used to demonstrate the application of software component commonality index. Keywords: component; software product line; commonality