Variability Management of Contextual Feature Model in Multi-Software Product Line

Authors : Muhammad Fezan Afzal, Asad Abbas, Imran Khan, Salma Imtiaz

Abstract : Software Product Line (SPL) paradigm is used for the development of the family of software products that share common and variable features. Feature model is a domain of SPL that consists of common and variable features with predefined relationships and constraints. Multiple SPLs consist of a number of similar common and variable features, such as mobile phones and Tabs. Reusability of common and variable features from the different domains of SPL is a complex task due to the external relationships and constraints of features in the feature model. To increase the reusability of feature model resources from domain engineering, it is required to manage the commonality of features at the level of SPL application development. In this research, we have proposed an approach that combines multiple SPLs into a single domain and converts them to a common feature model. Extracting the common features from different feature models is more effective, less cost and time to market for the application development. For extracting features from multiple SPLs, the proposed framework consists of three steps: 1) find the variation points, 2) find the constraints, and 3) combine the feature models into a single feature model on the basis of variation points and constraints. By using this approach, reusability can increase features from the multiple feature models. The impact of this research is to reduce the development of cost, time to market and increase products of SPL.

Keywords : software product line, feature model, variability management, multi-SPLs

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