Analysis of Bug Prevalence in Product Families

The term bug prevalence is derived from the medical world vocabulary and applied to Software Product Line (SPL), meaning all products that are affected by one particular bug. However, when it comes to SPL, analyzing the bug prevalence of a certain bug is still a challenge and a highly relevant topic, since the same bug may be present in several other products. To support this task, the main contribution of this work is the Product Genealogy approach. A core concept in our approach is the Product Genealogy Tree, in which the hierarchy of products in the SPL is represented, reflecting how each product evolved or was derived from another or from the core assets. In this context, the benefit of such a tree is the rapid visualization of the product’s structure in the SPL, providing input on which products to be initially examined. Besides that, this work introduces a novel analogy between the medical genetics world and SPL, in order to better explain the principles of our approach [SPLC2012]. The main focus of this master thesis is to extend these concepts, and implement the creation of the product genealogy tree as a UML model. After that the analysis can be perform and an evaluation can be executed.

Area
Software Product Lines, Impact Analysis, Software Configuration Management

Type
Theory (25%); System Building (25%); Implementation (25%); Evaluation (25%)

Prerequisites
- SPL Knowledge, Java development experience
- Plus: Configuration management Tools expertise (SVN, Git, mercurial, …)

Start
As soon as possible

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