

## 12. Bogumila Hnatkowska and Mateusz Cebinka: **Activity Diagram Generation Based On a Textual Use-Case Specification**

Requirements specification is one of the most important artefacts in software development. It is always created regardless of the methodology used. In many cases, it takes a form of a use-case model, which consists of use-case diagram and supplementary use-case specifications. The quality (readability, consistency, completeness) of these specifications plays a key role in the project success. Quality issues are addressed, among others, by using templates when a textual specification is created, or by presenting the specification graphically, e.g. by an activity diagram, for which some quality checks may be performed automatically. Such a graphical representation can also be used for other purposes, e.g. test generation. Requirements specification is used by various roles, from a customer or its representatives, through architects, programmers to testers. This creates a problem of discrepancies in the form of what the requirements specification looks like. To eliminate this problem, we propose a textual template for writing use-cases based on the existing guidelines and a transformation method that creates an activity diagram from the textual use-case specification consistent with the proposed template. The method was implemented as a plugin for the Visual Paradigm tool as a multi-stage transformation of models at the same level of abstraction. Its application is demonstrated by several test cases. Due to the frequent changes in created specifications, the automation of the process will save time. Moreover, the graphical representation of a use-case is simpler to analyze and easier to find errors or inconsistencies.