

A metrics suite for UML model stability

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Received: 21 June 2016 / Revised: 3 December 2016 / Accepted: 7 December 2016
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Abstract Software metrics have become an essential part of software development because of their importance in estimating cost, effort, and time during the development phase. Many metrics have been proposed to assess different software quality attributes, including stability. A number of software stability metrics have been proposed at the class, architecture, and system levels. However, these metrics typically target the source code. This paper proposes a software stability metrics suite at the model level for three UML diagrams: class, use case, and sequence. These three diagrams represent the most common diagrams in the three UML views: structural, functional, and behavioral. We introduce a client–master assessment approach to avoid measurement duplication. We also theoretically and empirically validate the proposed metrics suite. We also provide examples to demonstrate the use of the proposed metrics and their application as indicators of software stability.

Keywords Model stability · Software metrics · Metrics suite

Communicated by Dr. Timothy Lethbridge.

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