

Empirical Investigation for the Correlation between Object-Oriented Class Lack of Cohesion and Coupling

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Abstract : The design of the internal relationships among object-oriented class members (i.e., attributes and methods) and the external relationships among classes affects the overall quality of the object-oriented software. The degree of relatedness among class members is referred to as class cohesion and the degree to which a class is related to other classes is called class coupling. Well designed classes are expected to exhibit high cohesion and low coupling values. In this paper, using classes of three open-source Java systems, we empirically investigate the relation between class cohesion and coupling. In the empirical study, five lack-of-cohesion metrics and eight coupling metrics are considered. The empirical study results show that class cohesion and coupling internal quality attributes are inversely correlated. The strength of the correlation highly depends on the cohesion and coupling measurement approaches.

Keywords : class cohesion measure, class coupling measure, object-oriented class, software quality

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