

Understanding and Addressing Exhibitionism in Java: Empirical Research about Method Accessibility

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Abstract:

Information hiding is a positive consequence of properly defining component interfaces. Unfortunately, determining what should constitute a public interface remains difficult. We have analyzed over 3.6 million lines of Java open-source code and found that on the average, at least 20% of defined methods are over-exposed, thus threatening public interfaces to unnecessary exposure.

Such over-exposed methods may have their accessibility reduced to exactly reflect the method usage. We have identified three patterns in the source code to identify over-exposed methods. We also propose an Eclipse plugin to guide practitioners in identifying over-exposed methods and refactoring their applications. Our plugin has been successfully used to refactor a non-trivial application.