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Design of Metrics for Customization of Component Based Software Module

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Abstract

In this paper we will discuss such kind of metrics that are used to customize of software modules while software development takes place through component based methodology. While these metrics are used to do this it helpful how to reduce complexity while further improvement takes place in software development.

Keywords: *OO Metrics, Proposed Metrics.*

Introduction

Customization [1] is a technique that are used in software industries to simplifies upgrades and maintenance that will support and adoption and also used to simplified a software modules according to need of individual requirement. There is various valid enterprise requirements lead to customization of packaged software. In general, the benefits as well shortcoming available customization techniques are poorly understood and improperly tied together into an all-encompassing perception that all customizations inhibit evolvability.

As we know that maintenance, or evolution, is most expensive phase of the application life cycle. Once released, software has to be corrected and updated. And evolvability is the key metrics used to judge an applications ability to incorporate updates and new revisions of packaged software while maintaining required customizations throughout the application lifecycle.

Proposed Metrics for Customization

The purpose of this paper is to provide such kinds of metrics that are used for enhancing the software component design in order to improve quality and reusability, as well as to reduce costs based on the concept of mass customization and personalization (MC&P).

Ratio of Component Observability

$$RCO(c) = \begin{cases} \dfrac{Pr(c)}{A(c)} & A(c) > 0 \\ 0 & \text{Otherwise} \end{cases}$$

Pr (c) – is the number of reliable properties in c
A (c) – number of field in c's façade class

Ratio of Component Customizability (RCC)

This metric measure the percentage of writable properties in all fields implemented within a facade's class of a component c

$$RCC(c) = \begin{cases} \dfrac{Pw(c)}{A(c)} & A(c) > 0 \\ 0 & \text{Otherwise} \end{cases}$$

Pw (c) – is the percentage of writable properties in all fields implemented within a façade class of a component c

A (c) – number of field in c's façade class

3. Ratio of Self Completeness of Component's Parameter (RSCC)

This metric measure percentage of business method without any parameter in all business methods implemented with in a component c

$$RSCC(c) = \begin{cases} \dfrac{Bp(c)}{B(c)} & B(c) > 0 \\ 1 & \text{Otherwise} \end{cases}$$

Bp (c) – is the business method without parameter in Component c

B (c) – number of field in c's façade class

Objective to design Metrics for component oriented software Modules

Custom software designed to increase productivity, proficiencies and profitability.

Conclusion

The above metrics are play significant role for customization of software module, that will reduce overall cost and time while any software modules need to customize in future after software modules are implemented towards customer site. These metrics also help to perform regression testing while customization takes place on any software modules before or after implementation of software projects.

References

[1] Barnes, M. (1999). Customization of ERP apps requires development skill. Information Week, 9A-14A