

Knowledge Representation and Inconsistency Reasoning of Class Diagram Maintenance in Big Data

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Abstract : Requirements modeling and analysis are important in successful information systems' maintenance. Unified Modeling Language (UML) class diagrams are useful standards for modeling information systems. To our best knowledge, there is a lack of a systems development methodology described by the organism metaphor. The core concept of this metaphor is adaptation. Using the knowledge representation and reasoning approach and ontologies to adopt new requirements are emergent in recent years. This paper proposes an organic methodology which is based on constructivism theory. This methodology is a knowledge representation and reasoning approach to analyze new requirements in the class diagrams maintenance. The process and rules in the proposed methodology automatically analyze inconsistencies in the class diagram. In the big data era, developing an automatic tool based on the proposed methodology to analyze large amounts of class diagram data is an important research topic in the future.

Keywords : knowledge representation, reasoning, ontology, class diagram, software engineering

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