Implementing any big software system is a complex task. One of the major reasons for this is that, there one would like to modularize but for which the implementation would be spread out. Such concerns are more commonly known as Aspects. For example security aspect has to be taken care irrespective of the fact, whatever business logic is being implemented. These concerns cannot be modelled appropriately using traditional Object-oriented approach as these Aspects, manifest themselves as behaviours that are tangled and scattered across a system. Due to this fact, it affects the comprehension capabilities of modelling artefacts of the system also these issues lead to problems achieving traceability of aspects throughout the development lifecycle. Aspect-oriented Analysis and Design (AOAD) has been accepted as an alternative approach to tackle such concerns in an effective manner. This paper presents a comparative study of effectiveness of Aspect-oriented Analysis and Design versus Object-oriented Analysis and Design approach and analyses the results of both of these approaches on the comprehensibility of software systems' knowledge.

References

- Gregor Kiczales, James Hugunin, Erik Hilsdale, Mik Kersten, Jeff Palm, Crista Lopes, Bill Griswold, and Wes Isberg "ASPECT ORIENTED PROGRAMMING", Kiczales
Analyzing the Comprehensibility of Aspect-Oriented Modelling and Design of Software System

- Silvia Abraha, Carmine Gravino, Emilio Insfran, Assessing the Effectiveness of Sequence Diagrams in the Comprehension of Functional Requirements: Results from a Family of Five Experiments, IEEE TRANSACTIONS ON SOFTWARE ENGINEERING, VOL. 39, NO. 3, MARCH 2013
- I. Jacobson, Pan-Wei-Ng, Aspect-Oriented software Development with Use Cases (Addison-Wesley Object Technology Series), 2004.
- John Grundy, Aspect-oriented Requirements Engineering for Component-based Software Systems, Proceedings of RE'04, 7-11 June,
- www.wikipedia.org
- Nada Albunni, and Miltos Petridis using UML for Modelling Cross-Cutting Concerns in Aspect Oriented Software Engineering.
- SU Yang QIN Jun, Approach on Modeling Crosscutting Features in Concurrent System.
- Interaction Analysis in Aspect-Oriented Models Katharina Mehner Mattia Monga, Gabriele Taentzer, 14th IEEE International Requirements Engineering Conference (RE'06), 0-7695-2555-5/06 2006.
- ZHANG Ping, SU Yang, Understanding The Aspects From Various Perspectives in Aspects-Oriented Software Reverse Engineering, 2010 International Conference on Computer Application and System Modeling (ICCASM 2010).
Analyzing the Comprehensibility of Aspect-Oriented Modelling and Design of Software System

- Dianxiang Xu, Weifeng Xu, W. Eric Wong "Testing Aspect-Oriented Programs with UML Design Models".

Index Terms

Computer Science Software Design

Keywords

Aspect Oriented Aspect-Oriented UML Object-Oriented Analysis and Design Aspect Oriented Software Development Unified Modelling Language