

WICSA 07 Tutorial

Integrating Architecture-Centric Methods into Object-Oriented Analysis and Design
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Architecture has been established as a key to developing software systems that meet quality expectations of their stakeholders. Object-Oriented Analysis and Design (OOAD) methodologies, however, treat architecture only indirectly or implicitly. The quality of systems developed using such methodologies, thus, depends largely on the skill level and experience of its architect. It has been suggested, therefore, that augmenting these methodologies with software architecture-centric methods such as the Quality Attribute Workshop (QAW) and Attribute Driven Design (ADD) can provide explicit and methodical guidance to an architect in creating systems with desirable qualities.

In this tutorial, we will first go through the exercise of applying OOAD techniques (use case analysis, domain modeling, and component-based design) for creating the architecture for a system from the building automation domain. We then use the techniques prescribed by the architecture-centric methods (quality attribute workshop and attribute driven design) for creating the architecture for the same system. These two exercises are used to clearly demonstrate the shortcomings of OOAD. We finally demonstrate how OOAD can be augmented with architecture-centric methods to overcome these shortcomings.