

A Model Architecture Transformation with Approach by Modeling: From UML to Multidimensional Schemas of Data Warehouses

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Abstract : To provide a complete analysis of the organization and to help decision-making, leaders need to have relevant data; Data Warehouses (DW) are designed to meet such needs. However, designing DW is not trivial and there is no formal method to derive a multidimensional schema from heterogeneous databases. In this article, we present a Model-Driven based approach concerning the design of data warehouses. We describe a multidimensional meta-model and also specify a set of transformations starting from a Unified Modeling Language (UML) metamodel. In this approach, the UML metamodel and the multidimensional one are both considered as a platform-independent model (PIM). The first meta-model is mapped into the second one through transformation rules carried out by the Query View Transformation (QVT) language. This proposal is validated through the application of our approach to generating a multidimensional schema of a Balanced Scorecard (BSC) DW. We are interested in the BSC perspectives, which are highly linked to the vision and the strategies of an organization.

Keywords : data warehouse, meta-model, model-driven architecture, transformation, UML

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