Abstract

Data warehouses are huge repositories designed to enable the knowledge workers to make better and faster decisions. Due to its significance in strategic decision making, there is a need to assure data warehouse quality in the presence of evolution events which may be generated as result of change in schema / software or data warehouse requirements. One of the factors affecting the data warehouse quality is view maintenance models quality. Although there are some useful guidelines for designing good view maintenance models, but objective indicators, i.e., metrics are needed to help designers to develop quality view maintenance models. In our previous work, a quality metric for View maintenance models of data warehouse is proposed [25] However, the proposal overall lacks theoretical and empirical validation of the metric proposed. Hence, the metric practical utility could not be established. This paper validates the metrics both theoretically and empirically. The theoretical validation is performed using Zuse framework [7] while empirical validation is carried out using MVPP (Multiple View Processing Plan) to explore the relationship between the proposed metrics and cost efficiency of View maintenance models. The results show that all the four metrics NBR, NVM, NAMV and NFMV
have significant impact on the cost efficiency of View maintenance models.

References

Dragan Sahpaski, Goran Velinov, Boro Jakimovski, Margita Kon-‐Popovska, Dynamic Evolution and Improvement of Data Warehouse Design, Fourth Balkan Conference in Informatics, IEEE, 2009

Claudine Bréant, Gérald Thuillier, François Borst, Antoine Geissbuhler, Design of a Multi Dimensional Database for the Archimed DataWarehouse, Connecting Medical Informatics and Bio Informatics, R. Engelbrecht et al. (Eds.) ENMI, 2005


Matthias Jarke, Christoph Quix, Diego Calvanese, Maurizio Lenzerini, Enrico Franconi, Spyros Ligoudistianos, Panos Vassiliadis, Yannis Vassiliou, Concept Based Design of Data Warehouses: The DWQ Demonstrators, SIGMOD Conference 2000: 591

Claudine Bréant, Gérald Thuillier, François Borst, Antoine Geissbuhler, “Design of a Multi Dimensional Database for the Archimed DataWarehouse” Connecting Medical Informatics and BioInformatics. R. Engelbrecht et al. (Eds.) ENMI, 2005


Matthias Jarke, Christoph Quix, Diego Calvanese, Maurizio Lenzerini, Enrico Franconi, Spyros Ligoudistianos, Panos Vassiliadis, Yannis Vassiliou, “Concept Based Design of Data Warehouses: The DWQ Demonstrators”. SIGMOD Conference 2000: 591


**Index Terms**

Computer Science  
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**Keywords**

Data Warehouse, Data Warehouse Evolution, View maintenance models.