

Context-based Exploitation of Data Warehouses

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Abstract. An OLAP analysis can be defined as an interactive session during which an user launches queries over a data warehouse. The launched queries are often interdependent, and they can be either newly defined queries or they can be existing ones that are browsed and reused. Moreover, in a collaborative environment, queries may be shared among users. This notion of OLAP analysis has never been formally defined. In this paper, we propose a clear definition of this notion, by introducing a model for sharing, browsing and reusing OLAP queries over a data warehouse.

1 Introduction

In the area of OLAP exploitation of data warehouses (what we call analysis), there is a need for organizing, reusing, sharing queries, in order to simplify and speedup the querying process [DKK05, GMN06]. Broadly speaking, it can be said that contextual information during the exploitation of data warehouses must be taken into account. We propose a model that answers these needs, by adapting the model proposed by Spyrtatos et al. in the context of collaborative work [TACS02, AST03, AS04].

In this model, the user defines and stores OLAP queries in what is called a *context*. In a context, the user can organize the queries so that they are easily browsed in a subsequent session. This organisation can reflect e.g., classical query containment, or an order of importance relevant to the user. In a multi-user environment, contexts can be shared among users. The set of contexts can be browsed, or queried. In addition, OLAP queries in a given context can be imported into another context to enrich the user's current analysis.

The contribution of our work includes:

- A model for OLAP query organisation, which we called *the Context Base*, that allows to easily share and reuse queries,
- The languages for defining, manipulating and browsing this context base,
- The exploitation of the structure of the context base to provide useful recommendations for facilitating user browsing.

The rest of the paper is organized as follows. Section 2 motivates through an example the need for a tool for sharing, browsing and reusing queries in a collaborative OLAP environment.