ADAPTIVE QUERY INTERFACE AS A DATA ANALYSIS TOOL

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Introduction. Modern enterprise databases contain enormous amounts of data intended for analytical processing, visualization, and decision-making. Nonetheless, these data are almost useful without having interactive and flexible querying tools. Existing query languages require technical skills and prior experience in software engineering, database design, and database administration. On the other hand, there are so-called "query-wizards", which are included in modern database management systems and intended to simplify data querying for non-technical users. However, in practice, their functionality is not sufficient for most data analysis problems. Therefore, another approach to data querying is considered in this study.

Relevance. The problem of the development of a software tool for data querying becomes relevant because of two reasons. Firstly, data querying is the first and significant step in data analysis. Secondly, query languages require skills and experience, and existing "query wizards" are limited in their functionality and convoluted for end-users.

Proposal. This software tool should be equipped with an adaptive interface and used by data analysts, business analysts, top managers, etc. Adaptive interface is a user-friendly component of the system, which has a role of an intermediate layer between user and data source (e.g. stored procedure). Adaptiveness means the ability of interface to adapt to the needs of the user. Connected databases are queried with the help of graphical user interface. Users should provide parameters to stored procedure using different user interface components. Formed query then is executed and received data are displayed on the screen ready for further processing (see Fig. 1). Adaptiveness could be achieved by query recommendations. The system always captures statistics of query executions, which is then used to formulate recommendations. Data analysts are recommended with queries, which are similar to those executed before. For this purpose, we suggest to use described in [1] content-based filtering approach with vector space model (VSM) and simple TF-IDF weighting.
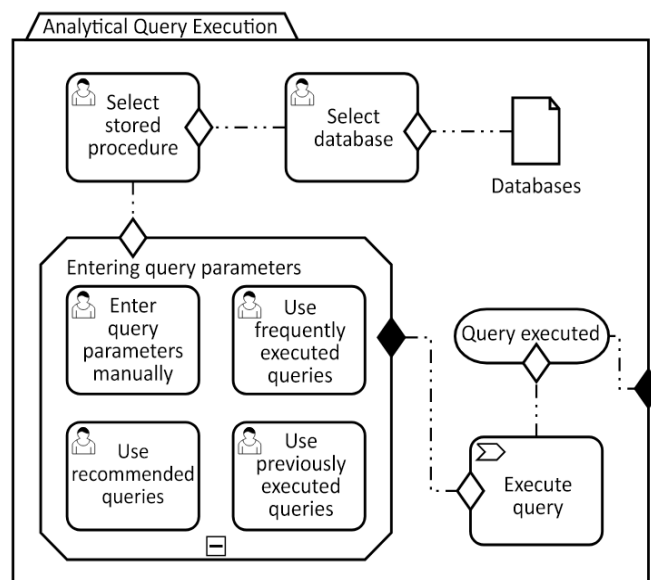

Fig. 1. – Case management model of query execution process

References:
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