Critique of DBSpinner: Making a Case for Iterative Processing in Databases

This paper [1] presents a solution to extend the capabilities of Relational Database Management Systems (RDBMSs) to handle iterative computations. The authors argue that the current SQL used by RDBMSs is limited in expressing iterative computations, which are essential for certain types of queries. The proposed solution extends the planner and optimizer of the RDBMS to support iterative Common Table Expressions (CTEs) natively, while retaining existing structures and resources of the system. The authors use the PageRank (PR) query as an example to demonstrate the need for iterative CTEs and to illustrate how they work. The authors describe the implementation of iterative CTEs in Futurewei's MPPDB database management system and highlight the advantages of their approach, such as ensuring ACID properties, allowing the workload manager to schedule iterative CTEs, avoiding unnecessary overhead, and applying existing query optimizations and cost estimations.

However, the description of the core algorithm in MPPDB could benefit from some clarifications and improvements in terms of presentation. The abstract could benefit from a clearer explanation of the motivation behind the research and the problem being addressed, as well as providing more context on the limitations of the current RDBMSs and how iterative CTEs address these limitations. The authors could have further improved their critique by explaining the benefits of their proposed solution over the existing approach and discussing the limitations of the proposed solution.

References:

[1] Sofoklis Floratos et al. DBSpinner: Making a Case for Iterative Processing in Databases. ICDE 2021