The Design and Implementation of a Sequence Database System

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Summary

In constrast to the relational database system, there exists a total order between records in sequence database system and the system knows the order between records. With this new data model, we can issue queries exploiting the data sequentiality. For example, we can issue a query which computes aggregates over data whose time values lie in a specific sliding time interval. For supporting this new type of query, authors defined a new declaritive query language which provides windowing, zooming, or shifting functionality and developed many query optimization techniques related to these new types of queries. The paper also introduces many alternatives authors considered when designing a sequence database system and presents why these alternatives were not chosen by comparing performance with the best choice.

Comments

First of all, I'm very impressed about the authors' work designing and implementing a whole new database system. I'm appreciative of all the hard works the authors did.

A few comments about the paper. A whole new system is introduced by presenting its components shortly in subsections of the paper. But it was very hard for me to catch the concept and understand the new query operators without detailed explaination. By following the references, I could understand the paper after seeing the author's doctoral thesis.

I don't know the difference between temporal and sequence database systems. I think that sequence database system generalizes the temporal database system by extending the ordering domain from only time domain in temporal database system to any ordering domain such as integer or location information. But I think that many query processing techniques in temporal database system can be appliable to sequence database system since the two database system commonly exploits the data sequentiality. But the authors did not mentioned similar query processing techniques in temporal databases. It would be more helpful for understanding a sequence database system well by comparing the two databases and presenting the similarities and differences between them.