Technical Paper Review

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Paper- A Gentle Introduction to Relational and Object Oriented Databases
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A database is a collection of diversified but interrelated pieces of information. It can store this information and their interconnections in various ways and in various forms. Some of these database types are Hierarchical, Network, Relational and Object Oriented. This paper consists of talks on relational databases, object oriented databases and the advantages and disadvantages of their applications in real world problems.

A relational database supports relational data structure and has a Data Manipulation Language(DML) which supports relational algebra. In simpler words, a relational database stores the information and their relationships in separate tables in the form of relation(subset of cartesian product of the informations) and the DML of the system is declarative and set-oriented. This isomorphism of the database system with a mathematical relation allows it to exploit many useful techniques and theorems from set theory. Also this relational algebra is closed, which means that algebraic operators take relations as operands and return relations as result, allowing the nesting of expressions to arbitrary depths. Although relational databases provide a strong interface to store information, sometimes issues like data complexity and mismatch between DBMS and the application can become unavoidable.

An object oriented database model allows containers like sets and lists, arbitrary user-defined datatypes as well as nested objects. This brings commonality between the application type systems and database type systems which removes any issue of impedance mismatch. Applications with rich type system for their data structures can be well supported by object oriented databases when these data structures are made persistent. Object databases, unlike relational does not provide any mathematical base for their deep analysis. It also doesn't provide closure property which eliminates the property of nesting of expressions. [1] [2] [3]

References

[1] Frank Stajano. A gentle introduction to relational and object oriented databases. 1995.

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[3] THE COMMITTEE FOR ADVANCED DBMS FUNCTION. *Third Generation Database System Manifesto*. 1990.