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Recent Developments for Data Models (and Query Languages)

<http://www/lgis.informatik.uni-kl.de/cms/courses/datenmodelle/>



Outline

Overview

I. Object-Relational Database Concepts

1. User-defined Data Types and Typed Tables
2. Object-relational Views and Composite Types
3. User-defined Routines and Object Behavior
4. Application Programs and Object-relational Capabilities

II. Online Analytic Processing

5. Data Analysis in SQL
6. Windows and Query Functions in SQL

III. XML

7. XML and Databases
8. SQL/XML
9. XQuery

IV. More Developments (if there is time left)

temporal data models, data streams, databases and uncertainty, ...



Books

- "Advanced SQL:1999 – Understanding Object-Relational and Other Advanced Features", Jim Melton, Morgan Kaufmann, 2003.
- "Objektrelationale und objektorientierte Datenbankkonzepte und –systeme", Andreas Geppert, dpunkt Verlag, 2002.
- "Understanding SQL and Java Together - A Guide to SQLJ, JDBC, and Related Technologies", Jim Melton, Andrew Eisenberg, Morgan Kaufmann, 05/2000.
- "XQuery – Ein Lehrbuch", Wolfgang Lehner, Harald Schöning, dpunkt Verlag, 2004.
- "XQuery from the Experts: A Guide to the W3C XML Query Language", Howard Katz, Don Chamberlin, Denise Draper, Mary Fernandez, Michael Kay, Jonathan Robie, Michael Rys, Jerome Simeon, Jim Tivy, Philip Wadler, Addison Wesley, 2003.

Papers and Specifications

- Malcolm P. Atkinson, François Bancilhon, David J. DeWitt, Klaus R. Dittrich, David Maier, Stanley B. Zdonik: The Object-Oriented Database System Manifesto. SIGMOD Conference 1990: 395
- Stefan Deßloch: SQL-Norm und Java. Datenbank-Spektrum 1: 25-32 (2001)
- Surajit Chaudhuri, Umeshwar Dayal: An Overview of Data Warehousing and OLAP Technology. SIGMOD Record 26(1): 65-74 (1997)
- David C. Fallside, XML Schema Part 0: Primer, 2 May, 2001, <http://www.w3.org/TR/xmlschema-0/>
- Andrew Eisenberg, Jim Melton: SQL/XML is Making Good Progress. SIGMOD Record 31(2): 101-108 (2002)
- Andrew Eisenberg, Jim Melton: Advancements in SQL/XML. SIGMOD Record 33(3): 79-86 (2004)
- Fatma Özcan, Donald D. Chamberlin, Krishna G. Kulkarni, Jan-Eike Michels: Integration of SQL and XQuery in IBM DB2. IBM Systems Journal 45(2): 245-270 (2006)
- Donald D. Chamberlin: XQuery: An XML query language. IBM Systems Journal 41(4): 597-615 (2002)
- XQuery 1.0: An XML Query Language (Second Edition), W3C Recommendation 14 December 2010, Editors: Scott Boag, Don Chamberlin, Mary F. Fernandez, Daniela Florescu, Jonathan Robie, Jerome Simeon, <http://www.w3.org/TR/xquery/>