

```

BEGIN ATOMIC
UPDATE Personnel_OrgChart
SET emp = 'Charles'
WHERE emp = 'Chuck';
UPDATE Personnel_OrgChart
SET boss = 'Charles'
WHERE boss = 'Chuck';
END;

```

```

UPDATE Personnel_OrgChart
SET emp = CASE WHEN emp =
'Chuck'
THEN 'Charles';
ELSE emp END;
boss = CASE WHEN boss = 'Chuck'
THEN 'Charles';
ELSE boss END;
WHERE 'Charles' IN (boss, emp);

```

```

CREATE TABLE Personnel
(emp_sbr INTEGER DEFAULT 0 NOT
NULL PRIMARY KEY,
emp_name VARCHAR(10) NOT NULL,
[password] VARCHAR(10) NOT NULL,
address VARCHAR(30) NOT NULL,
birth_date DATE NOT NULL);
CREATE TABLE OrgChart
(job_sbr VARCHAR(30) NOT NULL,
PRIMARY KEY,
emp_sbr INTEGER DEFAULT 0 --
zero is vacant position
NOT NULL,
REFERENCES Personnel(emp_sbr)
ON DELETE SET DEFAULT
ON UPDATE CASCADE,
boss_emp_sbr INTEGER -- null
means root node
REFERENCES Personnel(emp_sbr),
UNIQUE (emp_sbr, boss_emp_sbr),
salary DECIMAL(12,4) NOT NULL,
CHECK (salary >= 0.00);

```

```

CREATE FUNCTION TreeTest()
RETURNS CHAR(9)
LANGUAGE SQL
DETERMINISTIC
BEGIN ATOMIC
-- get a copy in a temporary table
INSERT INTO Tree SELECT emp,
boss FROM Personnel_OrgChart;
-- prune the leaves
WHILE (SELECT COUNT(*) FROM
Tree)-1
< (SELECT COUNT(boss) FROM
Tree)
DO DELETE FROM Tree
WHERE Tree.emp
NOT IN (SELECT boss

```

```

FROM Tree);
END;

```

```

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UPDATE Personnel_OrgChart
SET emp = 'Charles'
WHERE emp = 'Chuck';
UPDATE Personnel_OrgChart
SET boss = 'Charles'
WHERE boss = 'Chuck';
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PRIMARY KEY,
emp_sbr INTEGER DEFAULT 0 --
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ON DELETE SET DEFAULT
ON UPDATE CASCADE,
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< (SELECT COUNT(boss) FROM
Tree)
DO DELETE FROM Tree
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NOT IN (SELECT boss

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FROM Tree);
END;

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WHERE emp = 'Chuck';
UPDATE Personnel_OrgChart
SET boss = 'Charles'
WHERE boss = 'Chuck';
END;

```

```

UPDATE Personnel_OrgChart
SET emp = CASE WHEN emp =
'Chuck'
THEN 'Charles';
ELSE emp END;
boss = CASE WHEN boss = 'Chuck'
THEN 'Charles';
ELSE boss END;
WHERE 'Charles' IN (boss, emp);

```

```

CREATE TABLE Personnel
(emp_sbr INTEGER DEFAULT 0 NOT
NULL PRIMARY KEY,
emp_name VARCHAR(10) DEFAULT
[password] VARCHAR(10) NOT NULL,
address VARCHAR(30) NOT NULL,
birth_date DATE NOT NULL);

```

```

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WHERE Tree.emp
NOT IN (SELECT boss

```

```

FROM Tree);
END;

```

JOE CELKO'S TREES AND HIERARCHIES IN SQL FOR SMARTIES SECOND EDITION

Joe Celkos Trees And Hierarchies In Sql For Smarties

**Louis Davidson, Kevin Kline, Scott
Klein, Kurt Windisch**



Joe Celko's Trees And Hierarchies In Sql For Smarties:

Joe Celko's Trees and Hierarchies in SQL for Smarties Joe Celko, 2004-05-07 Expert advice for smarties is offered from the 1 SQL guru Trees and hierarchies are topics that all SQL users need to know and this is the first developer's guide that addresses these concepts that are universally difficult for programmers to master The book is Web enhanced with downloadable SQL code ready to use

[Joe Celko's Trees and Hierarchies in SQL for Smarties](#) Joe Celko, 2012-01-25 The demand for SQL information and training continues to grow with the need for a database behind every website capable of offering web based information queries SQL is the de facto standard for database retrieval and if you need to access update or utilize data in a modern database management system you will need SQL to do it The Second Edition of Joe Celko's Trees and Hierarchies in SQL for Smarties covers two new sets of extensions over three entirely new chapters and expounds upon the changes that have occurred in SQL standards since the previous edition's publication Benefit from mastering the challenging aspects of these database applications in SQL as taught by Joe Celko one of the most read SQL authors in the world Expert advice from a noted SQL authority and award winning columnist who has given 10 years of service to the ANSI SQL standards committee Teaches scores of advanced techniques that can be used with any product in any SQL environment Offers graph theory and programming techniques for working around deficiencies and gives insight into real world challenges

[Joe Celko's SQL for Smarties](#) Joe Celko, 2010-07-26 SQL for Smarties was hailed as the first book devoted explicitly to the advanced techniques needed to transform an experienced SQL programmer into an expert Now 10 years later and in the third edition this classic still reigns supreme as the book written by an SQL master that teaches future SQL masters These are not just tips and techniques Joe also offers the best solutions to old and new challenges and conveys the way you need to think in order to get the most out of SQL programming efforts for both correctness and performance In the third edition Joe features new examples and updates to SQL 99 expanded sections of Query techniques and a new section on schema design with the same war story teaching style that made the first and second editions of this book classics Expert advice from a noted SQL authority and award winning columnist who has given ten years of service to the ANSI SQL standards committee and many more years of dependable help to readers of online forums Teaches scores of advanced techniques that can be used with any product in any SQL environment whether it is an SQL 92 or SQL 99 environment Offers tips for working around system deficiencies Continues to use war stories updated that give insights into real world SQL programming challenges

Joe Celko's SQL Programming Style Joe Celko, 2005-05-19 Are you an SQL programmer that like many came to SQL after learning and writing procedural or object oriented code Or have switched jobs to where a different brand of SQL is being used or maybe even been told to learn SQL yourself If even one answer is yes then you need this book A Manual of Style for the SQL programmer this book is a collection of heuristics and rules tips and tricks that will help you improve SQL programming style and proficiency and for formatting and writing portable readable maintainable SQL

code Based on many years of experience consulting in SQL shops and gathering questions and resolving his students SQL style issues Joe Celko can help you become an even better SQL programmer Help you write Standard SQL without an accent or a dialect that is used in another programming language or a specific flavor of SQL code that can be maintained and used by other people Enable you to give your group a coding standard for internal use to enable programmers to use a consistent style Give you the mental tools to approach a new problem with SQL as your tool rather than another programming language one that someone else might not know

Joe Celko's SQL Puzzles and Answers Joe Celko, 2006-10-09 Joe Celko's SQL Puzzles and Answers Second Edition challenges you with his trickiest puzzles and then helps solve them with a variety of solutions and explanations Author Joe Celko demonstrates the thought processes that are involved in attacking a problem from an SQL perspective to help advanced database programmers solve the puzzles you frequently face These techniques not only help with the puzzle at hand but also help develop the mindset needed to solve the many difficult SQL puzzles you face every day This updated edition features many new puzzles dozens of new solutions to puzzles and new chapters on temporal query puzzles and common misconceptions about SQL and RDBMS that leads to problems This book is recommended for database programmers with a good knowledge of SQL A great collection of tricky SQL puzzles with a variety of solutions and explanations Uses the proven format of puzzles and solutions to provide a user friendly practical look into SQL programming problems many of which will help users solve their own problems New edition features Many new puzzles added Dozens of new solutions to puzzles and using features in SQL 99 Code is edited to conform to SQL STYLE rules New chapter on temporal query puzzles New chapter on common misconceptions about SQL and RDBMS that leads to problems

Joe Celko's Analytics and OLAP in SQL Joe Celko, 2010-07-26 Joe Celko's Analytics and OLAP in SQL is the first book that teaches what SQL programmers need in order to successfully make the transition from On Line Transaction Processing OLTP systems into the world of On Line Analytical Processing OLAP This book is not an in depth look at particular subjects but an overview of many subjects that will give the working RDBMS programmers a map of the terra incognita they will face if they want to grow It contains expert advice from a noted SQL authority and award winning columnist who has given ten years of service to the ANSI SQL standards committee and many more years of dependable help to readers of online forums It offers real world insights and lots of practical examples It covers the OLAP extensions in SQL 99 ETL tools OLAP features supported in DBMSs other query tools simple reports and statistical software This book is ideal for experienced SQL programmers who have worked with OLTP systems who need to learn techniques and even some tricks that they can use in an OLAP situation Expert advice from a noted SQL authority and award winning columnist who has given ten years of service to the ANSI SQL standards committee and many more years of dependable help to readers of online forums First book that teaches what SQL programmers need in order to successfully make the transition from transactional systems OLTP into the world of data warehouse data and OLAP Offers real world insights and lots of practical examples Covers the OLAP extensions in SQL 99

ETL tools OLAP features supported in DBMSs other query tools simple reports and statistical software SQL Chris Fehily,2010-04-16 SQL is a standard interactive and programming language for querying and modifying data and managing databases This task based tutorial and reference guide takes the mystery out learning and applying SQL After going over the relational database model and SQL syntax in the first few chapters veteran author Chris Fehily immediately launches into the tasks that will get readers comfortable with SQL In addition to covering all the SQL basics this thoroughly updated reference contains a wealth of in depth SQL knowledge and serves as an excellent reference for more experienced users T-SQL Querying Itzik Ben-Gan,Dejan Sarka,Adam Machanic,Kevin Farlee,2015 T SQL insiders help you tackle your toughest queries and query tuning problems Squeeze maximum performance and efficiency from every T SQL query you write or tune Four leading experts take an in depth look at T SQL s internal architecture and offer advanced practical techniques for optimizing response time and resource usage Emphasizing a correct understanding of the language and its foundations the authors present unique solutions they have spent years developing and refining All code and techniques are fully updated to reflect new T SQL enhancements in Microsoft SQL Server 2014 and SQL Server 2012 Write faster more efficient T SQL code Move from procedural programming to the language of sets and logic Master an efficient top down tuning methodology Assess algorithmic complexity to predict performance Compare data aggregation techniques including new grouping sets Efficiently perform data analysis calculations Make the most of T SQL s optimized bulk import tools Avoid date time pitfalls that lead to buggy poorly performing code Create optimized BI statistical queries without additional software Use programmable objects to accelerate queries Unlock major performance improvements with In Memory OLTP Master useful and elegant approaches to manipulating graphs About This Book For experienced T SQL practitioners Includes coverage updated from Inside Microsoft SQL Server 2008 T SQL Querying and Inside Microsoft SQL Server 2008 T SQL Programming Valuable to developers DBAs BI professionals and data scientists Covers many MCSE 70 464 and MCSA MCSE 70 461 exam topics

Information Modeling and Relational Databases Terry Halpin,Tony Morgan,2010-07-27 Information Modeling and Relational Databases Second Edition provides an introduction to ORM Object Role Modeling and much more In fact it is the only book to go beyond introductory coverage and provide all of the in depth instruction you need to transform knowledge from domain experts into a sound database design This book is intended for anyone with a stake in the accuracy and efficacy of databases systems analysts information modelers database designers and administrators and programmers Terry Halpin a pioneer in the development of ORM blends conceptual information with practical instruction that will let you begin using ORM effectively as soon as possible Supported by examples exercises and useful background information his step by step approach teaches you to develop a natural language based ORM model and then where needed abstract ER and UML models from it This book will quickly make you proficient in the modeling technique that is proving vital to the development of accurate and efficient databases that best meet real business objectives Presents the most indepth coverage of Object Role

Modeling available anywhere including a thorough update of the book for ORM2 as well as UML2 and E R Entity Relationship modeling Includes clear coverage of relational database concepts and the latest developments in SQL and XML including a new chapter on the impact of XML on information modeling exchange and transformation New and improved case studies and exercises are provided for many topics

Pro SQL Server 2008 Relational Database Design and Implementation

Louis Davidson, Kevin Kline, Scott Klein, Kurt Windisch, 2008-09-24 Learn effective and scalable database design techniques in a SQL Server environment Pro SQL Server 2008 Relational Database Design and Implementation covers everything from design logic that business users will understand all the way to the physical implementation of the design in a SQL Server database Grounded in best practices and a solid understanding of the underlying theory authors Louis Davidson Kevin Kline Scott Klein and Kurt Windisch show how to get it right in SQL Server database design and lay a solid groundwork for the future use of valuable business data Solid foundation in best practices and relational theory Maximize SQL Server features to enhance security performance scalability Thorough treatment from conceptual design to an effective physical implementation

Pro SQL Server Relational Database Design and Implementation Louis Davidson, Jessica Moss, 2016-12-29 Learn effective and scalable database design techniques in a SQL Server 2016 and higher environment This book is revised to cover in memory online transaction processing temporal data storage row level security durability enhancements and other design related features that are new or changed in SQL Server 2016 Designing an effective and scalable database using SQL Server is a task requiring skills that have been around for forty years coupled with technology that is constantly changing Pro SQL Server Relational Database Design and Implementation covers everything from design logic that business users will understand all the way to the physical implementation of design in a SQL Server database Grounded in best practices and a solid understanding of the underlying theory Louis Davidson shows how to get it right in SQL Server database design and lay a solid groundwork for the future use of valuable business data The pace of change in relational database management systems has been tremendous these past few years Whereas in the past it was enough to think about optimizing data residing on spinning hard drives today one also must consider solid state storage as well as data that are constantly held in memory and never written to disk at all except as a backup Furthermore there is a trend toward hybrid cloud and on premise database configurations as well a move toward preconfigured appliances Pro SQL Server Relational Database Design and Implementation guides in the understanding of these massive changes and in their application toward sound database design Gives a solid foundation in best practices and relational theory Covers the latest implementation features in SQL Server 2016 Helps you master in memory OLTP and use it effectively Takes you from conceptual design to an effective physical implementation What You Will Learn Develop conceptual models of client data using interviews and client documentation Recognize and apply common database design patterns Normalize data models to enhance scalability and the long term use of valuable data Translate conceptual models into high performing SQL Server databases Secure and protect data integrity

as part of meeting regulatory requirements Create effective indexing to speed query performance Who This Book Is For Programmers and database administrators of all types who want to use SQL Server to store data The book is especially useful to those wanting to learn the very latest design features in SQL Server 2016 features that include an improved approach to in memory OLTP durability enhancements temporal data support and more Chapters on fundamental concepts the language of database modeling SQL implementation and of course the normalization process lay a solid groundwork for readers who are just entering the field of database design More advanced chapters serve the seasoned veteran by tackling the very latest in physical implementation features that SQL Server has to offer The book has been carefully revised to cover all the design related features that are new in SQL Server 2016 **Joe Celko's Complete Guide to NoSQL** Joe Celko, 2013-10-07 Joe Celko's Complete Guide to NoSQL provides a complete overview of non relational technologies so that you can become more nimble to meet the needs of your organization As data continues to explode and grow more complex SQL is becoming less useful for querying data and extracting meaning In this new world of bigger and faster data you will need to leverage non relational technologies to get the most out of the information you have Learn where when and why the benefits of NoSQL outweigh those of SQL with Joe Celko's Complete Guide to NoSQL This book covers three areas that make today's new data different from the data of the past velocity volume and variety When information is changing faster than you can collect and query it it simply cannot be treated the same as static data Celko will help you understand velocity to equip you with the tools to drink from a fire hose Old storage and access models do not work for big data Celko will help you understand volume as well as different ways to store and access data such as petabytes and exabytes Not all data can fit into a relational model including genetic data semantic data and data generated by social networks Celko will help you understand variety as well as the alternative storage query and management frameworks needed by certain kinds of data Gain a complete understanding of the situations in which SQL has more drawbacks than benefits so that you can better determine when to utilize NoSQL technologies for maximum benefit Recognize the pros and cons of columnar streaming and graph databases Make the transition to NoSQL with the expert guidance of best selling SQL expert Joe Celko *SQL Antipatterns, Volume 1* Bill Karwin, 2022-10-24 SQL is the ubiquitous language for software developers working with structured data Most developers who rely on SQL are experts in their favorite language such as Java Python or Go but they're not experts in SQL They often depend on antipatterns solutions that look right but become increasingly painful to work with as you uncover their hidden costs Learn to identify and avoid many of these common blunders Refactor an inherited nightmare into a data model that really works Updated for the current versions of MySQL and Python this new edition adds a dozen brand new mini antipatterns for quick wins No matter which platform framework or language you use the database is the foundation of your application and the SQL database language is the standard for working with it Antipatterns are solutions that look simple at the surface but soon mire you down with needless work Learn to identify these traps and craft better solutions for the often

asked questions in this book Avoid the mistakes that lead to poor performance and quality and master the principles that make SQL a powerful and flexible tool for handling data and logic Dive deep into SQL and database design and learn to recognize the most common missteps made by software developers in database modeling SQL query logic and code design of data driven applications See practical examples of misconceptions about SQL that can lure software projects astray Find the greatest value in each group of data Understand why an intersection table may be your new best friend Store passwords securely and don't reinvent the wheel Handle NULL values like a pro Defend your web applications against the security weakness of SQL injection Use SQL the right way it can save you from headaches and needless work and let your application really shine What You Need The SQL examples use the MySQL 8.0 flavor but other popular brands of RDBMS are mentioned Other code examples use Python 3.9 or Ruby 2.7

Pro SQL Server 2012 Relational Database Design and Implementation Louis Davidson, Jessica Moss, 2012-09-07 Learn effective and scalable database design techniques in a SQL Server environment Pro SQL Server 2012 Relational Database Design and Implementation covers everything from design logic that business users will understand all the way to the physical implementation of design in a SQL Server database Grounded in best practices and a solid understanding of the underlying theory Louis Davidson shows how to get it right in SQL Server database design and lay a solid groundwork for the future use of valuable business data Gives a solid foundation in best practices and relational theory Covers the latest implementation features in SQL Server Takes you from conceptual design to an effective physical implementation

The Firebird Book Helen Borrie, 2004-08-02 Although less publicized than other open source database management systems Firebird continues to gain a dedicated following of professional users Figures have already reached hundreds of thousands worldwide in Firebird's short history in open source And until now no other book has been available This is the first official book on Firebird the free independent open source relational database server that emerged in 2000 Based on the actual Firebird Project this book will provide all you need to know about Firebird database development like installation multi platform configuration SQL interfaces and maintenance This comprehensive guide will help you build stable and scalable relational database back ends for all sizes of client server networks The text is well stocked with tips code examples and explanations to reinforce the material covered This book concentrates on Firebird edition 1.5 complete with updated language security and optimization features without neglecting the needs of Firebird 1.0 users

Similarity Joins in Relational Database Systems Nikolaus Augsten, Michael Bohlen, 2022-05-31 State of the art database systems manage and process a variety of complex objects including strings and trees For such objects equality comparisons are often not meaningful and must be replaced by similarity comparisons This book describes the concepts and techniques to incorporate similarity into database systems We start out by discussing the properties of strings and trees and identify the edit distance as the de facto standard for comparing complex objects Since the edit distance is computationally expensive token based distances have been introduced to speed up edit distance computations The basic idea is to

decompose complex objects into sets of tokens that can be compared efficiently Token based distances are used to compute an approximation of the edit distance and prune expensive edit distance calculations A key observation when computing similarity joins is that many of the object pairs for which the similarity is computed are very different from each other Filters exploit this property to improve the performance of similarity joins A filter preprocesses the input data sets and produces a set of candidate pairs The distance function is evaluated on the candidate pairs only We describe the essential query processing techniques for filters based on lower and upper bounds For token equality joins we describe prefix size positional and partitioning filters which can be used to avoid the computation of small intersections that are not needed since the similarity would be too low

Database and Expert Systems Applications Stephane Bressan,Josef Küng,Roland Wagner,2006-09-21 This book constitutes the refereed proceedings of the 17th International Conference on Database and Expert Systems Applications DEXA 2006 The book presents 90 revised full papers together with 1 invited paper The papers are organized in topical sections on XML data and information data mining and data warehouses database applications WWW bioinformatics process automation and workflow knowledge management and expert systems database theory query processing and privacy and security

Beyond Databases, Architectures and Structures. Advanced Technologies for Data Mining and Knowledge Discovery Stanisław Kozielski,Dariusz Mrozek,Paweł Kasprowski,Bożena Małysiak-Mrozek,Daniel Kostrzewa,2016-04-28 This book constitutes the refereed proceedings of the 12th International Conference entitled Beyond Databases Architectures and Structures BDAS 2016 held in Ustro Poland in May June 2016 It consists of 57 carefully reviewed papers selected from 152 submissions The papers are organized in topical sections namely artificial intelligence data mining and knowledge discovery architectures structures and algorithms for efficient data processing data warehousing and OLAP natural language processing ontologies and semantic Web bioinformatics and biomedical data analysis data processing tools novel applications of database systems

Information Retrieval Technology Akio Yamada,Helen Meng,Sung Hyon Myaeng,2005-11-15 Asia Information Retrieval Symposium AIRS was established in 2004 by the Asian information retrieval community after the successful series of Information Retrieval with Asian Languages IRAL workshops held in six different locations in Asia starting from 1996 The AIRS symposium aims to bring together international researchers and developers to exchange new ideas and the latest results in the field of information retrieval IR The scope of the symposium covers applications systems technologies and theoretical aspects of information retrieval in text audio image video and multi media data We are very pleased to report that we saw a sharp and steady increase in the number of submissions and their qualities compared with previous IRAL workshop series We received 136 submissions from all over the world including Asia North America Europe Australia and even Africa from which 32 papers 23% were presented in oral sessions and 36 papers in poster sessions 26% We also held a special session called Digital Photo Albuming where 4 oral papers and 3 posters were presented It was a great challenge and hard work for the program committee to select the best

among the excellent papers The high acceptance rates witness the success and stability of the AIRS series All the papers and posters are included in this LNCS Lecture Notes in Computer Science proceedings volume which is S indexed The technical program included two keynote talks by Prof Walter Bender and Prof **Recent Advances in Information and Communication Technology 2015** Herwig Unger,Phayung Meesad,Sirapat Boonkrong,2015-06-14 This book presents recent research work and results in the area of communication and information technologies The book includes the main results of the 11th International Conference on Computing and Information Technology IC2IT held during July 2nd 3rd 2015 in Bangkok Thailand The book is divided into the two main parts Data Mining and Machine Learning as well as Data Network and Communications New algorithms and methods of data mining asr discussed as well as innovative applications and state of the art technologies on data mining machine learning and data networking

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