SQL Language Pocket Reference (Pocket Reference (O'Reilly))

Hierarchical and recursive queries in SQL

Jonathan Gennick (2010). SQL Pocket Guide (3rd ed.). O'Reilly Media, Inc. p. 8. ISBN 978-1-4493-9409-7. C. J. Date (2011). SQL and Relational Theory: How

A hierarchical query is a type of SQL query that handles hierarchical model data. They are special cases of more general recursive fixpoint queries, which compute transitive closures.

In standard SQL:1999 hierarchical queries are implemented by way of recursive common table expressions (CTEs). Unlike Oracle's earlier connect-by clause, recursive CTEs were designed with fixpoint semantics from the beginning. Recursive CTEs from the standard were relatively close to the existing implementation in IBM DB2 version 2. Recursive CTEs are also supported by Microsoft SQL Server (since SQL Server 2008 R2), Firebird 2.1, PostgreSQL 8.4+, SQLite 3.8.3+, IBM Informix version 11.50+, CUBRID, MariaDB 10.2+ and MySQL 8.0.1+. Tableau has documentation describing how CTEs can be used. TIBCO Spotfire does not support CTEs, while Oracle 11g Release 2's implementation lacks fixpoint semantics.

Without common table expressions or connected-by clauses it is possible to achieve hierarchical queries with user-defined recursive functions.

C Sharp (programming language)

ISBN 978-1617294532. Drayton, Peter; Albahari, Ben; Neward, Ted (2002). C# Language Pocket Reference. O'Reilly. ISBN 0-596-00429-X. Petzold, Charles (2002). Programming

C# (see SHARP) is a general-purpose high-level programming language supporting multiple paradigms. C# encompasses static typing, strong typing, lexically scoped, imperative, declarative, functional, generic, object-oriented (class-based), and component-oriented programming disciplines.

The principal inventors of the C# programming language were Anders Hejlsberg, Scott Wiltamuth, and Peter Golde from Microsoft. It was first widely distributed in July 2000 and was later approved as an international standard by Ecma (ECMA-334) in 2002 and ISO/IEC (ISO/IEC 23270 and 20619) in 2003. Microsoft introduced C# along with .NET Framework and Microsoft Visual Studio, both of which are technically speaking, closed-source. At the time, Microsoft had no open-source products. Four years later, in 2004, a free and open-source project called Microsoft Mono began, providing a cross-platform compiler and runtime environment for the C# programming language. A decade later, Microsoft released Visual Studio Code (code editor), Roslyn (compiler), and the unified .NET platform (software framework), all of which support C# and are free, open-source, and cross-platform. Mono also joined Microsoft but was not merged into .NET.

As of January 2025, the most recent stable version of the language is C# 13.0, which was released in 2024 in .NET 9.0

Collection (abstract data type)

Chip (1999). "Collections in PL/SQL". Oracle PL/SQL Language Pocket Reference (4 ed.). Sebastopol, California: O'Reilly Media, Inc. (published 2007). p

In computer programming, a collection is an abstract data type that is a grouping of items that can be used in a polymorphic way.

Often, the items are of the same data type such as int or string. Sometimes the items derive from a common type; even deriving from the most general type of a programming language such as object or variant.

Although easily confused with implementations in programming languages, collection, as an abstract concept, refers to mathematical concepts which can be misunderstood when the focus is on an implementation. For example, a priority queue is often implemented as a heap, while an associative array is often implemented as a hash table, so these abstract types are often referred to by this preferred implementation, as a "heap" or a "hash", though this is incorrect conceptually.

Pick operating system

extended procedural language and called it RPL. PROC, the procedure language was provided for executing scripts. A SQL-style language called ENGLISH allowed

The Pick Operating System, also known as the Pick System or simply Pick, is a demand-paged, multi-user, virtual memory, time-sharing computer operating system based around a MultiValue database. Pick is used primarily for business data processing. It is named after one of its developers, Dick Pick.

The term "Pick system" has also come to be used as the general name of all operating environments which employ this multivalued database and have some implementation of Pick/BASIC and ENGLISH/Access queries. Although Pick started on a variety of minicomputers, the system and its various implementations eventually spread to a large assortment of microcomputers, personal computers, and mainframe computers.

Rust (programming language)

general-purpose programming language emphasizing performance, type safety, and concurrency. It enforces memory safety, meaning that all references point to valid memory

Rust is a text-based general-purpose programming language emphasizing performance, type safety, and concurrency. It enforces memory safety, meaning that all references point to valid memory. It does so without a conventional garbage collector; instead, memory safety errors and data races are prevented by the "borrow checker", which tracks the object lifetime of references at compile time.

Rust supports multiple programming paradigms. It was influenced by ideas from functional programming, including immutability, higher-order functions, algebraic data types, and pattern matching. It also supports object-oriented programming via structs, enums, traits, and methods.

Software developer Graydon Hoare created Rust as a personal project while working at Mozilla Research in 2006. Mozilla officially sponsored the project in 2009. The first stable release of Rust, Rust 1.0, was published in May 2015. Following a large layoff of Mozilla employees in August 2020, multiple other companies joined Mozilla in sponsoring Rust through the creation of the Rust Foundation in February 2021. In December 2022, Rust became the first language other than C and assembly to be supported in the development of the Linux kernel.

Rust has been noted for its adoption in many software projects, especially web services and system software. It has been studied academically and has a growing community of developers.

Regular expression

ISBN 978-0-534-94728-6. Stubblebine, Tony (2003). Regular Expression Pocket Reference. O'Reilly. ISBN 978-0-596-00415-6. Thompson, Ken (1968). "Programming Techniques:

A regular expression (shortened as regex or regexp), sometimes referred to as a rational expression, is a sequence of characters that specifies a match pattern in text. Usually such patterns are used by string-

searching algorithms for "find" or "find and replace" operations on strings, or for input validation. Regular expression techniques are developed in theoretical computer science and formal language theory.

The concept of regular expressions began in the 1950s, when the American mathematician Stephen Cole Kleene formalized the concept of a regular language. They came into common use with Unix text-processing utilities. Different syntaxes for writing regular expressions have existed since the 1980s, one being the POSIX standard and another, widely used, being the Perl syntax.

Regular expressions are used in search engines, in search and replace dialogs of word processors and text editors, in text processing utilities such as sed and AWK, and in lexical analysis. Regular expressions are supported in many programming languages. Library implementations are often called an "engine", and many of these are available for reuse.

Lisp (programming language)

the Computer Age. O'Reilly. ISBN 0-596-00662-4. Berkeley, Edmund C.; Bobrow, Daniel G., eds. (March 1964). The Programming Language LISP: Its Operation

Lisp (historically LISP, an abbreviation of "list processing") is a family of programming languages with a long history and a distinctive, fully parenthesized prefix notation.

Originally specified in the late 1950s, it is the second-oldest high-level programming language still in common use, after Fortran. Lisp has changed since its early days, and many dialects have existed over its history. Today, the best-known general-purpose Lisp dialects are Common Lisp, Scheme, Racket, and Clojure.

Lisp was originally created as a practical mathematical notation for computer programs, influenced by (though not originally derived from) the notation of Alonzo Church's lambda calculus. It quickly became a favored programming language for artificial intelligence (AI) research. As one of the earliest programming languages, Lisp pioneered many ideas in computer science, including tree data structures, automatic storage management, dynamic typing, conditionals, higher-order functions, recursion, the self-hosting compiler, and the read–eval–print loop.

The name LISP derives from "LISt Processor". Linked lists are one of Lisp's major data structures, and Lisp source code is made of lists. Thus, Lisp programs can manipulate source code as a data structure, giving rise to the macro systems that allow programmers to create new syntax or new domain-specific languages embedded in Lisp.

The interchangeability of code and data gives Lisp its instantly recognizable syntax. All program code is written as s-expressions, or parenthesized lists. A function call or syntactic form is written as a list with the function or operator's name first, and the arguments following; for instance, a function f that takes three arguments would be called as (f arg1 arg2 arg3).

Is functions

VB.NET Language Pocket Reference. O'Reilly Media, Inc. ISBN 978-0-596-00428-6. Roman, Steven; Petrusha, Ron; Lomax, Paul (2002b). VB.NET Language in a Nutshell

The Is functions (also known as data information functions, data inspection functions, or data-testing functions) are a set of functions in Microsoft's Visual Basic 6, Visual Basic for Applications, VBScript, and Visual Basic .NET. Several of them are also provided in Transact-SQL by the .NET Framework Data Provider for Microsoft SQL Server.

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Steven Feuerstein is an author focusing on the Oracle database PL/SQL language, having published several books on this language through O'Reilly Media. Feuerstein has worked with Oracle Database technology - and worked twice for Oracle Corporation - since 1987, and has been developing software since 1980.

Sixth normal form

of relational terms and concepts, with illustrative examples. O'Reilly Series Pocket references. O'Reilly Media, Inc. p. 90. ISBN 978-0-596-52798-3.

Sixth normal form (6NF) is a normal form used in relational database normalization which extends the relational algebra and generalizes relational operators (such as join) to support interval data, which can be useful in temporal databases.

The term 6NF has historically also been used to refer to another normalization degree, which today is more commonly known as domain-key normal form (DKNF) (see Other meanings).