SQL Programming

SQL

SQL is a set-based, declarative programming language, not an imperative programming language like C or BASIC. However, extensions to Standard SQL add - Structured Query Language (SQL) (pronounced S-Q-L; or alternatively as "sequel")

is a domain-specific language used to manage data, especially in a relational database management system (RDBMS). It is particularly useful in handling structured data, i.e., data incorporating relations among entities and variables.

Introduced in the 1970s, SQL offered two main advantages over older read–write APIs such as ISAM or VSAM. Firstly, it introduced the concept of accessing many records with one single command. Secondly, it eliminates the need to specify how to reach a record, i.e., with or without an index.

Originally based upon relational algebra and tuple relational calculus, SQL consists of many types of statements, which may be informally classed as sublanguages, commonly: data query language (DQL), data definition language (DDL), data control language (DCL), and data manipulation language (DML).

The scope of SQL includes data query, data manipulation (insert, update, and delete), data definition (schema creation and modification), and data access control. Although SQL is essentially a declarative language (4GL), it also includes procedural elements.

SQL was one of the first commercial languages to use Edgar F. Codd's relational model. The model was described in his influential 1970 paper, "A Relational Model of Data for Large Shared Data Banks". Despite not entirely adhering to the relational model as described by Codd, SQL became the most widely used database language.

SQL became a standard of the American National Standards Institute (ANSI) in 1986 and of the International Organization for Standardization (ISO) in 1987. Since then, the standard has been revised multiple times to include a larger set of features and incorporate common extensions. Despite the existence of standards, virtually no implementations in existence adhere to it fully, and most SQL code requires at least some changes before being ported to different database systems.

PL/SQL

PL/SQL (Procedural Language for SQL) is Oracle Corporation's procedural extension for SQL and the Oracle relational database. PL/SQL is available in Oracle - PL/SQL (Procedural Language for SQL) is Oracle Corporation's procedural extension for SQL and the Oracle relational database. PL/SQL is available in Oracle Database (since version 6 - stored PL/SQL procedures/functions/packages/triggers since version 7), TimesTen in-memory database (since version 11.2.1), and IBM Db2 (since version 9.7). Oracle Corporation usually extends PL/SQL functionality with each successive release of the Oracle Database.

PL/SQL includes procedural language elements such as conditions and loops, and can handle exceptions (run-time errors). It allows the declaration of constants and variables, procedures, functions, packages, types

and variables of those types, and triggers. Arrays are supported involving the use of PL/SQL collections. Implementations from version 8 of Oracle Database onwards have included features associated with object-orientation. One can create PL/SQL units such as procedures, functions, packages, types, and triggers, which are stored in the database for reuse by applications that use any of the Oracle Database programmatic interfaces.

The first public version of the PL/SQL definition was in 1995. It implements the ISO SQL/PSM standard.

SQL syntax

The syntax of the SQL programming language is defined and maintained by ISO/IEC SC 32 as part of ISO/IEC 9075. This standard is not freely available. - The syntax of the SQL programming language is defined and maintained by ISO/IEC SC 32 as part of ISO/IEC 9075. This standard is not freely available. Despite the existence of the standard, SQL code is not completely portable among different database systems without adjustments.

Transact-SQL

to interact with relational databases. T-SQL expands on the SQL standard to include procedural programming, local variables, various support functions - Transact-SQL (T-SQL) is Microsoft's and Sybase's proprietary extension to the SQL (Structured Query Language) used to interact with relational databases. T-SQL expands on the SQL standard to include procedural programming, local variables, various support functions for string processing, date processing, mathematics, etc. and changes to the DELETE and UPDATE statements.

Transact-SQL is central to using Microsoft SQL Server. All applications that communicate with an instance of SQL Server do so by sending Transact-SQL statements to the server, regardless of the user interface of the application.

Stored procedures in SQL Server are executable server-side routines. The advantage of stored procedures is the ability to pass parameters.

Microsoft SQL Server

Microsoft SQL Server is a proprietary relational database management system developed by Microsoft using Structured Query Language (SQL, often pronounced - Microsoft SQL Server is a proprietary relational database management system developed by Microsoft using Structured Query Language (SQL, often pronounced "sequel"). As a database server, it is a software product with the primary function of storing and retrieving data as requested by other software applications—which may run either on the same computer or on another computer across a network (including the Internet). Microsoft markets at least a dozen different editions of Microsoft SQL Server, aimed at different audiences and for workloads ranging from small single-machine applications to large Internet-facing applications with many concurrent users.

List of programming languages

index to notable programming languages, in current or historical use. Dialects of BASIC (which have their own page), esoteric programming languages, and - This is an index to notable programming languages, in current or historical use. Dialects of BASIC (which have their own page), esoteric programming languages, and markup languages are not included. A programming language does not need to be imperative or Turing-complete, but must be executable and so does not include markup languages such as HTML or XML, but

does include domain-specific languages such as SQL and its dialects.

SQL:1999

SQL:1999 (also called SQL 3) was the fourth revision of the SQL database query language. It introduced many new features, many of which required clarifications - SQL:1999 (also called SQL 3) was the fourth revision of the SQL database query language. It introduced many new features, many of which required clarifications in the subsequent SQL:2003. In the meanwhile SQL:1999 is deprecated.

Directive (programming)

January 2014). Oracle PL/SQL Programming (6 ed.). O'Reilly Media, Inc. (published 2014). ISBN 9781449324414. Retrieved 2016-06-16. PL/SQL has a PRAGMA keyword - In computer programming, a directive or pragma (from "pragmatic") is a language construct that specifies how a compiler (or other translator) should process its input. Depending on the programming language, directives may or may not be part of the grammar of the language and may vary from compiler to compiler. They can be processed by a preprocessor to specify compiler behavior, or function as a form of in-band parameterization.

In some cases directives specify global behavior, while in other cases they only affect a local section, such as a block of programming code. In some cases, such as some C programs, directives are optional compiler hints and may be ignored, but normally they are prescriptive and must be followed. However, a directive does not perform any action in the language itself, but rather only a change in the behavior of the compiler.

This term could be used to refer to proprietary third-party tags and commands (or markup) embedded in code that result in additional executable processing that extend the existing compiler, assembler and language constructs present in the development environment. The term "directive" is also applied in a variety of ways that are similar to the term command.

SQL programming tool

In the field of software, SQL programming tools provide platforms for database administrators (DBAs) and application developers to perform daily tasks - In the field of software, SQL programming tools provide platforms for database administrators (DBAs) and application developers to perform daily tasks efficiently and accurately.

Database administrators and application developers often face constantly changing environments which they rarely completely control. Many changes result from new development projects or from modifications to existing code, which, when deployed to production, do not always produce the expected result.

For organizations to better manage development projects and the teams that develop code, suppliers of SQL programming tools normally provide more than facility to the database administrator or application developer to aid in database management and in quality code-deployment practices.

PL/pgSQL

PL/pgSQL (Procedural Language/PostgreSQL) is a procedural programming language supported by the PostgreSQL ORDBMS. It closely resembles Oracle's PL/SQL language - PL/pgSQL (Procedural Language/PostgreSQL) is a procedural programming language supported by the PostgreSQL ORDBMS. It closely resembles Oracle's PL/SQL language. Implemented by Jan Wieck, PL/pgSQL first appeared with PostgreSQL 6.4, released on October 30, 1998. Version 9 also implements some ISO SQL/PSM features, like overloading of SQL-invoked functions and procedures.

PL/pgSQL, as a fully featured programming language, allows much more procedural control than SQL, including the ability to use loops and other control structures. SQL statements and triggers can call functions created in the PL/pgSQL language.

The design of PL/pgSQL aimed to allow PostgreSQL users to perform more complex operations and computations than SQL, while providing ease of use. The language is able to be defined as trusted by the server.

PL/pgSQL is one of the programming languages included in the standard PostgreSQL distribution, the others being PL/Tcl, PL/Perl and PL/Python. In addition, many others are available from third parties, including PL/Java, PL/pgPSM, PL/php, PL/R, PL/Ruby,

PL/sh,

PL/Lua, Postmodern (based on Common Lisp) and PL/v8. PostgreSQL uses Bison as its parser,

making it easy to port many open-source languages, as well as to reuse code.