Database Design And Programming With Access Sql And Visual Basic

Microsoft Access

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Microsoft Access is a database management system (DBMS) from Microsoft that combines the relational Access Database Engine (ACE) with a graphical user interface and software-development tools. It is part of the Microsoft 365 suite of applications, included in the Professional and higher editions or sold separately.

Microsoft Access stores data in its own format based on the Access Database Engine (formerly Jet Database Engine). It can also import or link directly to data stored in other applications and databases.

Software developers, data architects and power users can use Microsoft Access to develop application software. Like other Microsoft Office applications, Access is supported by Visual Basic for Applications (VBA), an object-based programming language that can reference a variety of objects including the legacy DAO (Data Access Objects), ActiveX Data Objects, and many other ActiveX components. Visual objects used in forms and reports expose their methods and properties in the VBA programming environment, and VBA code modules may declare and call Windows operating system operations.

== History ==

In the 1980s, Microsoft Access referred to an unrelated telecommunication program...

SQL

language, not an imperative programming language like C or BASIC. However, extensions to Standard SQL add procedural

programming language functionality, such

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...

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.

== History ==

Visual programming language

In computer programming education, a visual programming language, block coding system or diagrammatic programming language, is a programming language that

In computer programming education, a visual programming language, block coding system or diagrammatic programming language, is a programming language that lets users create programs by manipulating program elements graphically rather than by specifying them textually. A VPL allows programming with visual expressions, spatial arrangements of text and graphic symbols, used either as elements of syntax or secondary notation. For example, many VPLs are based on the idea of "boxes and arrows", where boxes or other screen objects are treated as entities, connected by arrows, lines or arcs which represent relations. VPLs are generally the basis of low-code development platforms. Scratch is an example of a VPL.[1]

== Definition ==

VPLs may be further classified, according to the type and extent of visual expression used, into icon-based languages, form-based languages, and diagram languages. Visual programming environments provide graphical or iconic elements which can be manipulated by users in an interactive way according to some specific spatial grammar for program construction.

The general goal of VPLs is to make programming more accessible to novices and to support programmers at three...

Embedded database

that includes: database systems with differing application programming interfaces (SQL as well as proprietary, native APIs) database architectures (client-server

An embedded database system is a database management system (DBMS) that is tightly integrated with application software, and is embedded within the application rather than provided as a standalone system. It is a broad technology category that includes:

database systems with differing application programming interfaces (SQL as well as proprietary, native APIs)

database architectures (client-server and in-process)

storage modes (on-disk, in-memory, and combined)

database models (relational, object-oriented, entity–attribute–value model, network/CODASYL)

target markets

The term “embedded” is sometimes used to refer to use on embedded devices (as opposed to the definition given above). However, only a small subset of embedded database systems are used in real-time embedded systems such as telecommunications switches and consumer electronics. (See mobile database for small-footprint databases that can be used on embedded devices.)

== Implementations ==

Major embedded database products include, in alphabetical order:

MSDE

Microsoft SQL Server Data Engine (MSDE, also Microsoft Data Engine or Microsoft Desktop Engine) is a relational database management system developed by

Microsoft SQL Server Data Engine (MSDE, also Microsoft Data Engine or Microsoft Desktop Engine) is a relational database management system developed by Microsoft. It is a scaled-down version of Microsoft SQL Server 7.0 or 2000 which is free for non-commercial use as well as certain limited commercial use. It was introduced at Microsoft TechEd in May 1999, and was included as part of Microsoft Office 2000 Developer Edition. Its successor, SQL Server Express was released in November 2005. Vendor support of MSDE ended on April 8, 2008.

== Overview ==

Microsoft Visual Studio Express

for databases other than SQL Server Express and Microsoft Access No support for web applications with ASP.NET (although, it is supported by Visual Web

Microsoft Visual Studio Express was a set of integrated development environments (IDEs) that Microsoft developed and released

free of charge. They are function-limited version of the non-free Visual Studio and require mandatory registration. Express editions started with Visual Studio 2005.

In 2013, Microsoft began supplanting Visual Studio Express with the more feature-rich Community edition of Visual Studio, which is available free of charge with a different license that disallow some scenarios in enterprise settings. The last version of the Express edition is the desktop-only 2017.

== 2005–2010: Language-centric editions ==

Open Database Connectivity

computing, Open Database Connectivity (ODBC) is a C language standard application programming interface (API) for accessing database management systems

In computing, Open Database Connectivity (ODBC) is a C language standard application programming interface (API) for accessing database management systems (DBMS). The designers of ODBC aimed to make it independent of database systems and operating systems. An application written using ODBC can be ported to other platforms, both on the client and server side, with few changes to the data access code.

ODBC accomplishes DBMS independence by using an ODBC driver as a translation layer between the application and the DBMS. The application uses ODBC functions through an ODBC driver manager with which it is linked, and the driver passes the query to the DBMS. An ODBC driver can be thought of as analogous to a printer driver or other driver, providing a standard set of functions for the application to use, and implementing DBMS-specific functionality. An application that can use ODBC is referred to as "ODBC-compliant". Any ODBC-compliant application can access any DBMS for which a driver is installed. Drivers exist for all major DBMSs, many other data sources like address book systems and Microsoft Excel, and even for text or comma-separated values (CSV) files.

ODBC was originally developed...

Database Workbench

Database Workbench is a software application for development and administration of multiple relational databases using SQL, with interoperationality between

Database Workbench is a software application for development and administration of multiple relational databases using SQL, with interoperationality between different database systems, developed by Upscene Productions.

Because Databases Workbench supports multiple database systems, it can provide software developers with the same interface and development environment for these otherwise different database systems and also includes cross database tools.

== Development ==

Database Workbench started out as a developer tool specifically for InterBase, "InterBase Workbench", initially modeled after the SQL Navigator tool for Oracle Database by Quest Software. During its early years, InterBase became open-source for a short while, and soon after Firebird was created as a fork from the InterBase code base. The main developer of Database Workbench, Martijn Tonies, was closely involved in the early development of Firebird, has been a committee member of the Firebird Foundation and continues to be a Foundation member and sponsor.

Database Workbench continued to support both database systems, initially through a separate "Firebird Workbench" release. Not long after, the program became interoperational...

MySQL Workbench

MySQL Workbench is a visual database design tool that integrates SQL development, administration, database design, creation and maintenance into a single

MySQL Workbench is a visual database design tool that integrates SQL development, administration, database design, creation and maintenance into a single integrated development environment for the MySQL database system. It is the successor to DBDesigner 4 from fabFORCE.net, and replaces the previous package of software, MySQL GUI Tools Bundle.

== History ==

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