

Microsoft SQL Server

Before we talk about Microsoft SQL Server we should Know what is the SQL ?

- **SQL** is (stands for Structured Query Language)lets you access and manipulate databases and can execute queries against a database and can insert , update and delete records in a database .

Now What is Microsoft SQL Server ?

Microsoft SQL Server is a relational database management system ([RDBMS](#)) that supports a wide variety of transaction processing, business intelligence and analytics applications in corporate IT environments. Microsoft SQL Server is one of the three market-leading database technologies, along with Oracle Database and IBM's [DB2](#).

Like other ([RDBMS](#)) software, Microsoft SQL Server is built on top of [SQL](#) , a standardized programming language that database administrators (DBAs) and other IT professionals use to manage databases and query the data they contain. SQL Server is tied to Transact-SQL ([T-SQL](#)), an implementation of SQL from Microsoft that adds a set of proprietary programming extensions to the standard language.

How SQL Server works ?

Like other RDBMS technologies, SQL Server is primarily built around a row-based table structure that connects related data elements in different tables to one another, avoiding the need to redundantly store data in multiple places within a database. The relational model also provides referential integrity and other integrity constraints to maintain data accuracy. Those checks are part of a broader adherence to the principles of atomicity, consistency, isolation and durability, collectively known as the [ACID properties](#), and are designed to guarantee that database transactions are processed reliably.

The core component of Microsoft SQL Server is the SQL Server Database Engine, which controls data storage, processing and security. It includes a relational engine that processes commands and queries and a storage engine that manages database files, tables, pages, indexes, data buffers and transactions. Stored procedures, triggers, views and other database objects are also created and executed by the Database Engine .

SQL Server services, tools and editions : -

Microsoft also bundles a variety of data management, business intelligence ([BI](#)) and analytics tools with SQL Server. In addition to the R Services and now [Machine Learning](#) Services technology that first appeared in SQL Server 2016, the data analysis offerings include SQL Server Analysis Services, an analytical engine that processes data for use in BI and data visualization applications, and SQL Server Reporting Services, which supports the creation and delivery of BI reports.

On the data management side, Microsoft SQL Server includes SQL Server Integration Services, SQL Server Data Quality Services and SQL Server Master Data Services. Also bundled with the DBMS are two sets of tools for

DBAs and developers: SQL Server Data Tools, for use in developing databases, and [SQL Server Management Studio](#), for use in deploying, monitoring and managing databases.

SQL Server editions :

Microsoft offers SQL Server in four primary editions that provide different levels of the bundled services. Two are available free of charge: a full-featured Developer edition for use in database development and testing, and an Express edition that can be used to run small databases with up to 10 GB of disk storage capacity. For larger applications, Microsoft sells an Enterprise edition that includes all of SQL Server's features, as well as a Standard one with a partial feature set and limits on the number of processor cores and memory sizes that users can configure in their database servers.

Other editions include a Standard version, Web version and a Business Intelligence version. The Business Intelligence version provides Self Service and Corporate Business Intelligence tools with the Standard Edition capabilities.

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