



Certified SQL Server 2008 Programmer Sample Material

V-Skills Certifications

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1. INTRODUCTION

IBM invented a computer language during 1970s for database queries known as SEQUEL (Structured English Query Language) which was later also used to build databases and manage it. IBM released SEQUEL it in public domain, where it became known as SQL. Various versions of SQL are used by RDBMS vendors and Microsoft SQL Server uses Transact-SQL.

Microsoft initially developed SQL Server with Sybase Corporation for the IBM OS/2 platform and OS/2 was left for Windows NT Server with the resulting product called as Microsoft SQL Server 4.2 and later 4.21. Microsoft and Sybase parted ways, Microsoft developed SQL Server 6.0 and later SQL Server 6.5, for Windows NT. SQL Server 7.0 runs on Windows NT as well as on Windows 95 and Windows 98. Later on with newer features, SQL Server 2000, 2005 and 2008 were released as shown in table below along with their service packs

Name	RTM/No SP	SP1	SP2	SP3	SP4
SQL Server 2008 R2	10.50.1600.0	10.50.2500	10.50.4000.0		
SQL Server 2008	10.00.1600.22	10.0.2531.0	10.0.4000.0	10.00.5500	
SQL Server 2005	9.00.1399	9.00.2047	9.00.3042	9.00.4035	9.00.5000
SQL Server 2000	8.00.194	8.00.384	8.00.532	8.00.760	8.00.2039
SQL Server 7.0	7.00.623	7.00.699	7.00.842	7.00.961	7.00.10

1.1. RDBMS

It is a short form for relational database management system and is a type of database management system (DBMS) that stores data in the form of related tables. Relational databases are powerful because they require few assumptions about how data is related or how it will be extracted from the database. As a result, the same database can be viewed in many different ways.

An important feature of relational systems is that a single database can be spread across several tables. This differs from flat-file databases, in which each database is self-contained in a single table.

1.2. SQL Server Versions

SQL Server is a complex product with different services to cater to different requirements hence, Microsoft offers SQL Server 2008 in a variety of editions, with the low-end Express Edition which is also free, to the expensive and fully functional Enterprise Edition. Selecting a specific edition depends upon user's data processing needs and different editions with their features are listed below.

Feature	Express	Workgroup	Standard	Enterprise
Maximum Processors	1	2	4	Unlimited
Maximum RAM	1GB	3GB	Unlimited	Unlimited
Maximum Database Size	4GB	Unlimited	Unlimited	Unlimited

Feature	Express	Workgroup	Standard	Enterprise
Database Mirroring	No	No	Yes	Yes
Log Shipping	No	Yes	Yes	Yes
Merge Subscriber	Yes	Yes	Yes	Yes
Merge Publisher	No	No	Yes	Yes
Oracle Replication	No	No	No	Yes
SQL Agent	No	Yes	Yes	Yes
SQL Profiler	No	No	Yes	Yes
Analysis Services	No	No	Yes	Yes
Advanced Analytics	No	No	No	Yes
Partitioning	No	No	No	Yes
Data Compression	No	No	No	Yes
Resource Governor	No	No	No	Yes

Developer Edition is also available for application developers and offers all functionality as that of Enterprise Edition at low price but, it can be used only for development purposes and not for any production environment.

1.3. SQL Server Components

Various tools are provided by Microsoft to facilitate working with SQL Server and each for a specific set of tasks and they include

- ✓ SQL Server Configuration Manager - It helps in basic day-to-day administrative tasks for changing the configuration of SQL Server like,
 - ✓ Start, stop, pause, and restart SQL Server services
 - ✓ Configure the use of network protocols to access SQL Server
 - ✓ Configure SQL Server Native Client connectivity
- ✓ SQL Server Management Studio - SQL Server Management Studio (SSMS), is the main interface for database administrator to configure and interact with databases from a single console like to directly issue Transact-SQL commands to SQL Server databases and to build databases using SSMS's GUI.
- ✓ SQL Server Books Online - It is the detailed online documentation for SQL Server 2008 from Microsoft having the latest information for administrators and developers for details on command syntax or SQL Server features.
- ✓ Reporting Services - It enables design and publishing of dynamic reports based on SQL Server data.
- ✓ Analysis Services - It offers advanced analytical techniques, like the online analytical processing (OLAP), data warehouses, and data mining.

1.4. New Features

Microsoft SQL Server 2008 has various new features and advances with new functionality as compared to earlier version of SQL Server 2005 as

- ✓ Declarative Management Framework - The Declarative Management Framework (DMF) enables DBAs to set high-level policies describing the allowed configuration status of DMF managed SQL Server instances and functionality it offers, includes
 - ✓ Create policies governing SQL Server configurations
 - ✓ Evaluate an instance's current configuration against a policy and determine what deficiencies, if any, exist
 - ✓ Apply a policy to a SQL Server instance
 - ✓ Log or prevent any changes to a SQL Server instance that would bring it out of compliance with policy
- ✓ Encryption and Auditing - New security features in SQL Server 2008 includes
 - ✓ Transparent Data Encryption (TDE) allows the encryption of databases and backups with no user impact.
 - ✓ Enhanced auditing features allow the tracking of data access, in addition to data modification.
- ✓ Resource conservation - SQL Server 2008 includes two features to optimize server performance as
 - ✓ Resource Governor - It sets limits and priorities for different SQL Server workloads by providing different users with a guaranteed level of performance.
 - ✓ Backup compression shrinks the size of backup data before it is written to disk, reducing both the amount of time necessary to create a backup and the disk space used to store the backup.
- ✓ Date/Time Data Types - SQL Server 2008 provides four new date and time related data types as
 - ✓ The DATE data type is a calendar date only, with no time information.
 - ✓ The TIME data type is a time only, with no date information.
 - ✓ The DATETIMEOFFSET data type is a date/time that allows for the inclusion of time zone information.
 - ✓ The DATETIME2 data type allows the specification of a date anywhere within the range of the year 1 A.D. to the year 9999 A.D.

1.5. SQL Server Files

SQL Server 2008 uses three types of file for storage of database and related information as

- ✓ MDF files - They are the primary data file storing the all the data of the database and is the only single file for a database. It also has configuration information and the location of other database files.
- ✓ NDF file - It is an optional file and is used to spread data in database across multiple files.
- ✓ LDF file - It is the log file storing transaction logs for the database and is needed during restoration of database from backup.