SQL SERVER

INTERVIEW QUESTIONS
YOU'LL MOST LIKELY BE ASKED

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Interview Questions

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SQL Server

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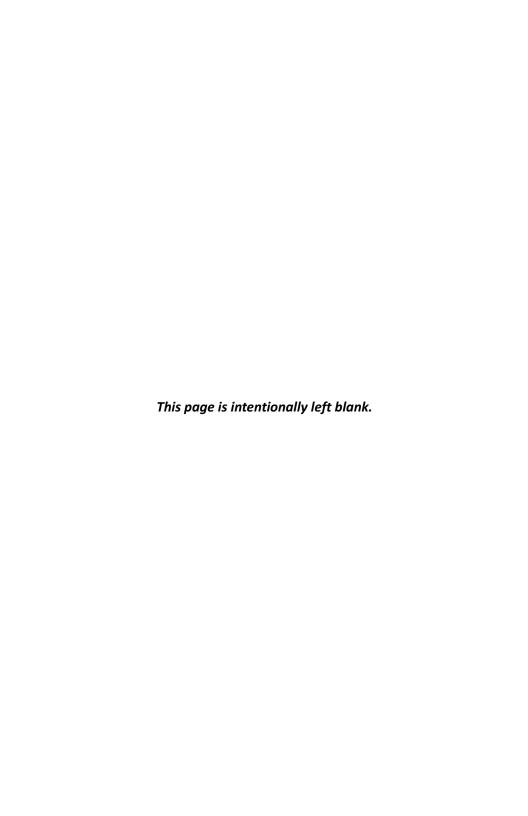
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SQL Server Interview Questions

Review these typical interview questions and think about how you would answer them. Read the answers listed; you will find best possible answers along with strategies and suggestions.

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Chapter 1

Engine Enhancements

1: List out the major engine enhancements in SQL Server 2005 database engine.

Answer:

Some of the major engine enhancements featured in SQL Server 2005 are in the fields of Programmability, Manageability, Distributed Queries, Availability, XML, Scalability and Performance, International Enhancements and Security Enhancements. Some major improvements are the introduction of new data types, integration of SQL programming with the .Net environment, the database engine can be managed more dynamically, improved indexing, backup and restore features, XML data type, improved native table and index partitions, improved characterset support and better security enhancements. The latest version, SQL Server 2016, is promising some

enhancements in Stretch Database, Foreign Key relationship limits and SERVERPROPERTY. It also has upgrades in the Analysis Services, Master Data Services, Integration Services and Reporting Services.

2: List three major Programmability Enhancements in SQL Server 2005 database engine.

Answer:

Some of the major Programmability enhancements featured in SQL Server 2005 are:

a) New data types like CLR, XML and large object data types such as varchar(max), nvarchar(max) etc.

b) Integration with .Net framework for using T-SQL statements, Triggers, Stored Procedures and User-defined Functions within the Visual Studio IDE. This gives more options in the .Net framework to manipulate and debug database programming easily.

c) New operators in Transact SQL such as APPLY, PIVOT and UNPIVOT. The APPLY operator lets the user call a function that returns a table data type or a subquery against each row of the outer query. PIVOT and UNPIVOT are used to turn the rows into columns and columns into rows (rotating data) for cross-tab reports.

3: List four major Manageability Enhancements in SQL Server 2005 database engine.

Answer:

The main Manageability Enhancements in SQL Server 2005 is that

the database engine can be managed more dynamically. The users and schemas are separated now for better security, table and Index partitioning has improved considerably, files can be initialised instantly and managing the indexes has become easier. The three major enhancements are:

a) **In the Security aspects –** the 2005 release has included a GRANT permission which can be used to grant all permissions. The objects are now stored in schemas and individual users cannot own them. Instead, access is given to specific roles for specific schemas. Users who belong to these roles can access the schema and the objects in it.

b) **For the Administrators –** table and index partitions are allowed in 2005 release. This makes managing bulk data much easier. Dynamic memory management is possible now which supports large databases as against the static memory in the earlier versions which had limitations.

c) **Managing the indexes has become simpler** and more effective in 2005 release. Now the administrators can reorganize, rebuild or disable the indexes easily.

d) Since XML has become a new data type in 2005 version, now we **can create a new XML schema** for storing and managing XML documents within the database.

4: List the major Security Enhancements in SQL Server 2005 database engine.
Answer:
The latest Security enhancements are reduced surface area during installation using a configuration tool, data encryption within the

database, granular permission, password policy at par with Windows Server 2003, security context for module execution is defined and multiple proxy accounts are allowed. During installation, all features are not installed by default as earlier. This reduces the surface area required for installation. The Surface Area Configuration tool allows the user to manage the server's external safety profile using a GUI. Module signing lets hiding the inner modules and schema of the database from the end user. The first module which is open to the end user is granted permission and there the basic security validations can be done. SQL Server 2005 allows the stored procedures, triggers (other than DDL triggers), functions and assemblies to be signed or secured.

5: SQL Server offers a fully integrated hybrid solution. Explain.
Answer:
SQL Server offers a variety of hybrid solutions by providing the following options for the enterprise:

a) Deploy applications on non-virtualized environments
b) Deploy applications on private cloud which is an On-premises cloud
c) Deploy applications on public cloud which is an Off-premises cloud
d) Deploy applications on appliances

Also, all the above options can be integrated with each other.

6: What are the features of SQL Server?
Answer:
SQL supports the following features:

    a) High Performance

    b) Easy to Maintain

    c) Scalability

    d) Security

    e) Availability

    f) Easy to Code - Program

7: List the new availability enhancements supported in SQL Server 2012.

Answer:

The new availability enhancements supported in SQL Server 2012 are:

    a) AlwaysOn Availability Groups

    b) AlwaysOn Failover Cluster Instances

    c) Windows Server Core support and

    d) Recovery Advisor.

8: What are the features of SQL Server supported in Enterprise Edition?

Answer:

SQL Server supports the following features in enterprise edition:

    a) **Data Quality Services:** Technology used to manage and measure data quality

    b) **Master Data Services:** To compare external data with master data

    c) **Columnstore Indexing:** Performing indexing by storing data in memory

    d) Advanced Auditing, Reporting, and Analytics

e) Partitioning and Compression

f) **TDE:** Transparent Data Encryption

g) Advanced High Availability achieved with AlwaysOn feature

h) Supports all Business Intelligence Edition feature

9: What are the features of SQL Server supported in Business Intelligence Edition?

Answer:

SQL supports the following features in Business Intelligence edition:

a) Supports a maximum of 16 cores for DB (Database) engine

b) High Availability achieved with AlwaysOn 2 Node failover clusters

c) Multidimensional BI (Business Intelligence) semantic model

d) Power View, Analytics, and Reporting

e) Spatial Support, File table, and policy based management

10: How do availability enhancements support for Windows server core?

Answer:

Windows server core is a scaled down edition of Windows OS (Operating System), and it requires fewer reboots (approximately 50-60%) when patching servers leading to higher server uptime and increased security.

11: What is the benefit of Recovery Advisor?

Answer:

The Recovery Advisor provides a Visual timeline to simplify the DB restore process. The timeline is used mainly to specify the backups and restore database at a specific point of time.

12: What are the scalability and performance enhancements available in SQL Server?

Answer:

The following are the scalability and performance enhancements features of SQL Server which allows to improve the server workloads:

a) Column Store Indexes

b) Higher partition support

c) Online Indexing

d) Achieve maximum scalability using Windows Server 2008 R2

13: What are the Manageability Enhancements of SQL Server 2012?

Answer:

The following are the Manageability Enhancement features of SQL Server 2012:

a) Management Studio

b) Transact-SQL Debugger

c) IntelliSense Enhancements

d) Insert Snippet Menu and

e) Resource Governor enhancements

f) Contained databases

    g) Tight integration with SQL Azure

    h) Data-Tier Application (DAC) Enhancements

14: What are the security enhancements of SQL Server?

Answer:

The security capabilities and controls of SQL Server are:

    a) Provides user-defined roles for easily allocating the responsibilities

    b) Improve compliance and resiliency, it provides audit enhancements

    c) Provides default schema for Groups

    d) Contained Database Authentication provides DB authentication that uses self-contained access information without the need for server logins

    e) Share point and Active directory security model for higher data security in end-user reports

15: What are the programmability enhancements of SQL Server?

Answer:

For programmability enhancements, SQL Server provides support for the following data types:

    a) XML

    b) Digital Media

    c) Spatial Documents

    d) Scientific Records

    e) Factoids

    f) Other unstructured data types

16: Explain DAC enhancements.

Answer:

DAC refers to Data tier Application. This is a concept introduced in SQL Server 2008 R2. It is a single unit of deployment containing database's schema, dependent objects and deployment requirements used by an application. The enhancements for DAC 2012 are:

a) Upgrades are performed in an in-place fashion instead of the side-by-side upgrade process that existed for years

b) DAC could be deployed, imported and exported across enterprise and in public cloud such as SQL Azure

c) DAC support many more objects compared to the previous version

17: Explain how SQL Server supports tight integration with SQL Azure.

Answer:

This is one of the manageability enhancement supports of SQL Server. SQL Server provides an interface for deploying a new database to SQL Azure through which the enterprise can deploy an on-premise database to SQL Azure. Also, new cloud services are enabled and available in SQL Azure data sync which provides bidirectional data synchronization between databases across the data center and cloud.

18: Explain Resource Governor Enhancements.

Answer:

Resource Governor Enhancement is a manageability enhancement

of SQL Server. The important benefits are:

a) It is used for the management of workloads and resources by implementing limits on the consumption of resources based on incoming requests

b) The number of resource pools support increased from 24 to 60 in resource governor to meet customer expectations of large resource pool and large scale multitenant database solution with a higher level of isolation between workloads

c) It has a new DMV (Dynamic Management View) called sys.dm_resource_governor_resource_pool_affinity which improves the DB admin's success in tracking the resource pool affinity

19: Explain Columnstore Index.

Answer:

Columnstore index is introduced in SQL Server 2012. It is an in-memory index build directly in the engine. This is mainly used for performance improvements to improve the queries associated with the data warehouse workloads by 10 to 100 times.

20: Explain the partition support enhancements in SQL Server.

Answer:

SQL Server 2012, by default, supports up to 15,000 partitions per table. This is mainly to boost scalability and performance of large tables and data warehouses. The previous version, by default, supports only 1000 partitions. This increase in partition support helps to enable large sliding-window scenarios for data ware

house maintenance.

21: How can SQL Server achieve maximum scalability?
Answer:

SQL Server achieves maximum scalability with the help of Windows Server 2008 R2. This server is mainly build to achieve dynamic scalability, reliability, unprecedented work load size, and across the board availability. Also, Windows Server supports up to 256 logical processors and 2 terra bytes of memory in a single OS instance.

22: What are the additional features included in SQL Server Management Studio?
Answer:

These two features are included in SQL Server 2012 Management Studio:

    a) **IntelliSense Enhancements -** IntelliSense Enhancement suggests string matches based on partial words. In the previous version, recommendations were provided based on first character.

    b) **Transact-SQL Debugger -** Transact-SQL debugger is used to enhance break point functionality and to debug scripts on the instances of SQL Server versions starting from 2005.

23: What is the use of Contained Databases?
Answer:

The risk associated with the DB is that if the DB is moved to another instance of SQL Server, the login does not exist. This is

resolved by Contained DBs, in which users are authenticated directly into DB without need for logins in the DB engine. This feature provides better portability of user DBs among servers because they have no external dependencies.

24: What is the use of FileTable?

Answer:

File Table is a new feature introduced in SQL Server 2012 mainly used to store unstructured data such as media files, XML, and documents which usually reside on a file server. File Table provides namespace support and application compatibility with the data stored in SQL Server. As a result, full text and semantic search is achievable over structured and unstructured data.

25: Explain Full Text search enhancement.

Answer:

Full text search offers better scale and performance in SQL Server 2012. It has property scoped search functionality which allows enterprise to search properties such as Author and title without the need for programmers to have a separate file properties in DB. Programmers benefit by customizing proximity search using NEAR operator that allows specifying the maximum number of non-search terms that separate the first and last terms in a search.

26: What are the editions of SQL Server 2012?

Answer:

SQL Server 2012 has three editions. They are:

   a) Standard Edition

b) Business Intelligence Edition

c) Enterprise Edition

27: What is an in-place upgrade?

Answer:

The In-Place upgrade replaces the previous versions of binaries to SQL Server 2012 binaries on the existing machine. The data is automatically converted from the previous version to SQL Server 2012. The supported up gradation versions are available from 2005. Upgrading from 2000, 7.0, 6.5 are not supported.

28: What are the benefits of side-by-side migration over an in-place upgrade?

Answer:

Side-by-side migration builds a new DB infrastructure on SQL Server 2012 and avoids migration issues that might occur with an in-place upgrade. It also provides more control over the upgrade progress and can migrate DB and component independently. Performing a rollback is easy when performing the migration.

29: What are the high level steps performed for Step-by-Step migration?

Answer:

The following are the high level migration steps for upgrading to SQL Server 2012:

a) Ensure the instance of SQL Server meets the software and hardware requirements

b) Review the discontinued and deprecated features

c) Be sure to run the 2012 Upgrade Advisor to migrate the

       data and verify it proceeds smoothly
- d) Procure the hardware and install Windows Server 2012 (highly recommended)
- e) Install the SQL Server 2012 prerequisites and desired components
- f) Migrate objects from legacy server to new DB platform
- g) Point applications to the new DB
- h) Ensure the legacy servers are decommissioned after the migration is complete

30: What are the advantages of In-Place upgrade in SQL Server?
Answer:
Following are the advantages of in-place upgrade in SQL Server:

- a) The strategy followed in in-place upgrade is less risky and easy to upgrade
- b) The in-place upgrade process is very fast and it does not require any supporting hardware
- c) During the upgrade process, the server instance names never get changed
- d) The in-place upgrade is less time consuming as it does not require making changes in the application connection properties

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New Questions Added

SQL Server Interview Questions You'll Most Likely Be Asked is a perfect companion to stand ahead above the rest in today's competitive job market. Rather than going through comprehensive, textbook-sized reference guides, this book includes only the information required immediately for job search to build an IT career. This book puts the interviewee in the driver's seat and helps them steer their way to impress the interviewer.

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