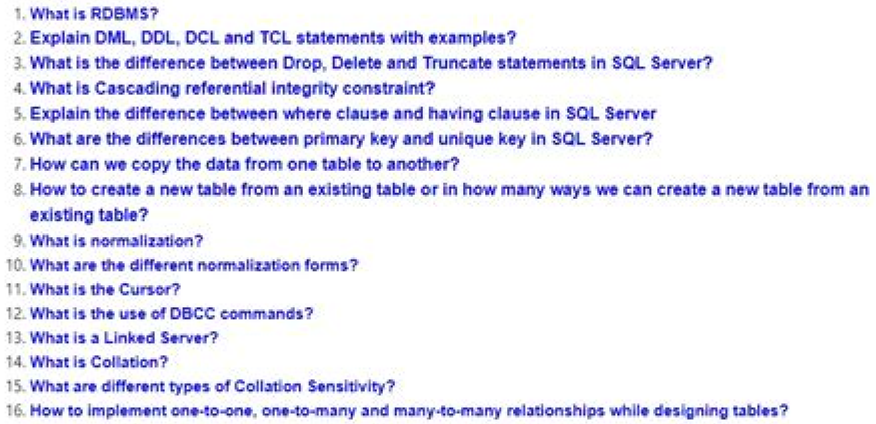
Sql Server 2005 Interview Questions And Answers



1. What is RDBMS?
2. Explain DML, DDL, DCL and TCL statements with examples?
3. What is the difference between Drop, Delete and Truncate statements in SQL Server?
4. What is Cascading referential integrity constraint?
5. Explain the difference between where clause and having clause in SQL Server
6. What are the differences between primary key and unique key in SQL Server?
7. How can we copy the data from one table to another?
8. How to create a new table from an existing table or in how many ways we can create a new table from an existing table?
9. What is normalization?
10. What are the different normalization forms?
11. What is the Cursor?
12. What is the use of DBCC commands?
13. What is a Linked Server?
14. What is Collation?
15. What are different types of Collation Sensitivity?
16. How to implement one-to-one, one-to-many and many-to-many relationships while designing tables?

SQL Server 2005 interview questions and answers are essential for candidates seeking positions in database administration or development. SQL Server 2005, a widely used version of Microsoft's relational database management system, introduced many new features and improvements over its predecessors. This article presents a collection of common interview questions and answers that can help candidates prepare effectively for interviews.

Understanding SQL Server 2005 Basics

1. What is SQL Server 2005?

SQL Server 2005 is a relational database management system developed by Microsoft. It provides a platform for building and managing databases and includes features for data storage, retrieval, and management. It supports various programming languages, including T-SQL, and incorporates tools for reporting, analysis, and data warehousing.

2. What are the key features of SQL Server 2005?

Some notable features of SQL Server 2005 include:
- Integration Services (SSIS): For data transformation and integration.
- Reporting Services (SSRS): For creating, deploying, and managing reports.
- Analysis Services (SSAS): For data analysis and business intelligence.
- Database Mirroring: For high availability and disaster recovery.
- Common Language Runtime (CLR) Integration: Allows managed code to be executed in the database.
- Enhanced Security Features: Including transparent data encryption and improved role-based security.

SQL Server 2005 Architecture

3. What is the architecture of SQL Server 2005?

The architecture of SQL Server 2005 comprises several components:
- SQL Server Database Engine: Handles all database operations, including storage, processing, and security.
- SQL Server Management Studio (SSMS): The primary tool for database administration and development.
- SQL Server Agent: Manages scheduled tasks and jobs.
- SQL Server Profiler: Used for monitoring and analyzing SQL Server events.
- SQL Server Configuration Manager: Manages server configuration settings.

4. Explain the role of the SQL Server Database Engine.

The SQL Server Database Engine is the core service for storing, processing, and securing data. It provides:
- Transaction Management: Ensures that all database transactions are processed reliably.
- Concurrency Control: Manages simultaneous operations without conflicting.
- Data Storage Management: Organizes data storage efficiently to optimize performance.
- Security Management: Protects data through authentication and authorization.

SQL Queries and Functions

5. What is T-SQL, and how is it different from SQL?

Transact-SQL (T-SQL) is an extension of SQL (Structured Query Language) used by SQL Server. T-SQL includes additional features such as:
- Procedural Programming Constructs: Such as loops and conditional statements.
- Built-in Functions: For string manipulation, date handling, and mathematical calculations.
- Error Handling: Using TRY...CATCH blocks.

6. What are the different types of joins in SQL Server 2005?

SQL Server 2005 supports several types of joins:
- INNER JOIN: Returns records with matching values in both tables.
- LEFT (OUTER) JOIN: Returns all records from the left table and matched records from the right table.
- RIGHT (OUTER) JOIN: Returns all records from the right table and matched records from the left table.
- FULL (OUTER) JOIN: Returns all records when there is a match in either left or right table.
- CROSS JOIN: Returns the Cartesian product of two tables.

Data Types and Indexing

7. What are the different data types supported by SQL Server 2005?

SQL Server 2005 supports a variety of data types, including:
- Numeric Types: INT, DECIMAL, FLOAT.
- Character Types: CHAR, VARCHAR, NCHAR, NVARCHAR.
- Date and Time Types: DATE, TIME, DATETIME, SMALLDATETIME.
- Binary Types: BINARY, VARBINARY, IMAGE.
- Other Types: XML, UNIQUEIDENTIFIER, CURSOR.

8. What is an index, and why is it used?

An index is a database object that improves the speed of data retrieval operations on a table. It acts like a pointer to the data in a table, allowing the database engine to find rows more quickly. Indexes can be:
- Clustered Index: Determines the physical order of data in the table.
- Non-Clustered Index: Creates a separate structure to store pointers to the data.

Database Administration and Security

9. How do you perform a backup and restore in SQL Server 2005?

To perform a backup in SQL Server 2005:
1. Open SQL Server Management Studio (SSMS).
2. Right-click on the database you want to back up.
3. Select Tasks > Back Up.
4. Choose the backup type (FULL, DIFFERENTIAL, or LOG).
5. Specify the destination for the backup file and click OK.

To restore a database:
1. Right-click on the Databases node in SSMS.
2. Select Restore Database.
3. Choose the source of the backup and specify the database to restore.
4. Click OK to initiate the restore process.

10. What are roles and permissions in SQL Server 2005?

Roles in SQL Server 2005 are used to manage permissions efficiently. They can be:
- Fixed Roles: Predefined roles such as db_owner, db_datareader, and db_datawriter.
- User-defined Roles: Custom roles created by administrators to grant specific permissions to users.

Permissions determine what actions users can perform on database objects. They can be granted, denied, or revoked.

Performance Tuning and Troubleshooting

11. What is SQL Server Profiler, and how is it used?

SQL Server Profiler is a tool that allows you to monitor and analyze SQL Server events in real-time. It can be used for:
- Performance Tuning: Identifying slow-running queries.
- Auditing: Tracking user activity and changes to data.
- Troubleshooting: Diagnosing issues related to database performance.

To use SQL Server Profiler:
1. Start a new trace.
2. Select the events you want to monitor.
3. Run the trace and analyze the results.

12. How do you optimize a SQL query?

To optimize a SQL query, consider the following strategies:
- Use Indexes: Ensure proper indexing on the columns used in WHERE clauses and JOIN conditions.
- Avoid SELECT : Specify only the columns you need to reduce data transfer.
- Use Proper Joins: Choose the appropriate join types based on your data needs.
- Analyze Execution Plans: Use the execution plan to identify bottlenecks and optimize the query structure.

Conclusion

Preparing for a SQL Server 2005 interview involves understanding both fundamental concepts and advanced features. The questions and answers provided in this article serve as a guideline for candidates to refine their knowledge and bolster their confidence. By mastering the topics discussed, candidates will be well-equipped to tackle SQL Server 2005 interview questions and demonstrate their expertise in database management.

Frequently Asked Questions

What are the different types of joins in SQL Server 2005?

SQL Server 2005 supports several types of joins including INNER JOIN, LEFT JOIN, RIGHT JOIN, and FULL OUTER JOIN. Each join type determines how the records from two or more tables are combined based on related columns.

How can you improve the performance of SQL Server 2005 queries?

Performance can be improved by creating appropriate indexes, optimizing queries by rewriting them or using stored procedures, avoiding cursors when possible, and analyzing execution plans to identify bottlenecks.

What is a stored procedure in SQL Server 2005?

A stored procedure is a precompiled collection of one or more SQL statements that can be executed as a single unit. It allows for code reusability, improved performance, and can accept parameters for dynamic execution.

What is the purpose of the SQL Server 2005 transaction log?

The transaction log records all transactions and database modifications made by each transaction. It is crucial for data recovery, ensuring that the database can be restored to a consistent state after a failure.

What is the difference between a primary key and a foreign key in SQL Server 2005?

A primary key uniquely identifies each record in a table and cannot contain NULL values. A foreign key is a field (or collection of fields) in one table that refers to the primary key in another table, establishing a relationship between the two tables.

How do you handle errors in SQL Server 2005?

Error handling can be managed using TRY...CATCH blocks in T-SQL. If an error occurs in the TRY block, control is transferred to the CATCH block, where the error can be logged or handled appropriately.

What are SQL Server 2005 data types?

SQL Server 2005 supports several data types, including INT, FLOAT, VARCHAR, NVARCHAR, DATETIME, and more. Each data type is used to define the kind of data that can be stored in a column.

What is normalization in SQL Server 2005?

Normalization is the process of organizing data in a database to reduce redundancy and improve data integrity. It involves structuring a database in such a way that dependencies are properly enforced by database relationships.

How can you backup and restore a database in SQL Server 2005?

You can back up a database using the BACKUP DATABASE command and restore it using the RESTORE DATABASE command. This can be done through SQL Server Management Studio or via T-SQL commands.

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