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Top 18 MS SQL DBA Interview Questions and Answers

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MS SQL DBA Interview Questions and Answers

An MS SQL DBA specializes in Microsoft SQL Server, which is widely used in many organizations. Their deep understanding of SQL Server's features, functionalities, and best practices enables them to efficiently manage and optimize SQL Server databases. Currently, the demand for MS SQL DBA is more than ever, so this is the right time for you to learn from our MS SQL DBA Interview Questions and Answers to ace your interview and land a job as a MS SQL Server DBA.

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1. What is MS SQL DBA?

An MS SQL DBA manages Microsoft SQL Server databases, handling tasks like installation, configuration, security, performance optimization, backup management, and ensuring high availability. They play a crucial role in maintaining database reliability, security, and efficiency to support organizational operations effectively.

2. What purpose does the model database server serve in MS SQL?

- The “model” database in MS SQL Server acts as a blueprint for new user databases.
- When creating a new database, SQL Server replicates the structure and settings from the “model” database. Therefore, any alterations made to the “model” database, like schema adjustments or default configurations, will be inherited by subsequent databases.
- Essentially, the “model” database simplifies the creation of new databases, promoting consistency and minimizing the requirement for manual setup.

3. What types of replication are supported in MS SQL Server?

MS SQL Server offers various replication types tailored to diverse needs:

- **Snapshot Replication:** Periodically captures database snapshots and sends them to subscribers. Ideal for scenarios with infrequent data changes or no real-time synchronization needs.
- **Transactional Replication:** Tracks real-time

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changes in the publisher database and transmits them to subscribers as individual transactions. Perfect for frequent data updates requiring swift and efficient replication.

- **Merge Replication:** Enables updates at both publisher and subscriber databases, later synchronizing these changes. Suitable for bidirectional data replication, managing conflicts arising from updates at both ends.
- **Peer-to-Peer Replication:** Employs a multi-master setup where each database server serves as both publisher and subscriber, facilitating scalable and highly available data propagation.
- **Transactional Replication with Updatable Subscriptions:** Allows subscribers to receive replicated data and make changes that reflect back to the publisher. Ideal for scenarios necessitating subscriber data updates to sync with the publisher.

4. How do you trace the traffic coming to MS SQL Server?

To trace traffic to MS SQL Server:

- **SQL Server Profiler:** A Microsoft tool for capturing SQL Server events like queries and errors, customizable with filters.
- **Extended Events:** SQL Server's lightweight event processing system, offering efficient event capture and analysis.
- **Dynamic Management Views (DMVs):** SQL Server's views exposing server activity details, including queries and connections, for insight into traffic.
- **Audit Logs:** Built-in auditing feature in SQL Server to track actions like logins and database access, providing audit logs for incoming traffic analysis.

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- **Network Monitoring Tools:** Utilize tools like Wireshark to capture and analyze SQL Server-related network traffic, aiding in traffic identification based on ports and protocols.

5. What is DBCC in MS SQL DBA?

DBCC in MS SQL Server refers to Database Console Commands. These commands are maintenance and diagnostic tools used by database administrators (DBAs) to perform tasks like:

- **Ensuring Database Consistency:** Commands like DBCC CHECKDB and DBCC CHECKTABLE identify any corruption or integrity issues in the database.
- **Maintaining Indexes:** DBCC INDEXDEFRAG and DBCC DBREINDEX defragment and rebuild indexes to enhance query performance.
- **Verifying Database Integrity:** DBCC CHECKALLOC ensures the integrity of database allocation structures.
- **Updating Statistics:** DBCC UPDATEUSAGE and DBCC SHOW_STATISTICS update and display statistics crucial for query optimization.
- **Reclaiming Resources:** DBCC SHRINKDATABASE and DBCC SHRINKFILE reclaim unused space in database files.
- **Managing Transaction Logs:** DBCC SQLPERF(LOGSPACE) monitors transaction log size, while DBCC OPENTRAN identifies active transactions.
- **Miscellaneous Tasks:** DBCC FREEPROCCACHE clears SQL Server plan cache, DBCC DROPCLEANBUFFERS removes clean buffers, and DBCC INPUTBUFFER displays the last SQL command from a client.

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6. What are the different ways available to create a Database in MS SQL DBA?

In MS SQL Server, you have various methods to create databases:

- **SQL Server Management Studio (SSMS):** Microsoft's graphical interface for SQL Server management. Simply right-click on "Databases" in Object Explorer, choose "New Database," and provide details like name and file locations.
- **Transact-SQL (T-SQL) Script:** Use T-SQL language with a CREATE DATABASE statement to specify database properties and options.

Example:

CREATE DATABASE MyDatabase

ON PRIMARY

(NAME = MyDatabase_Data, FILENAME = 'C:\Data\MyDatabase.mdf', SIZE = 100MB, MAXSIZE = UNLIMITED, FILEGROWTH = 10%)

LOG ON

(NAME = MyDatabase_Log, FILENAME = 'C:\Data\MyDatabase_Log.ldf', SIZE = 50MB, MAXSIZE = 1GB, FILEGROWTH = 5MB);

- **SQL Server Management Objects (SMO):** Managed libraries for programmatic SQL Server management, used in .NET or PowerShell scripts.
- **SQL Server Data Tools (SSDT):** Development environment for building SQL Server databases and business solutions, aiding in designing and deploying databases.
- **Template Databases:** SQL Server provides model and tempdb as templates. Customize these to control settings when creating new

user databases.

7. What is the role of a clustered index?

The arrangement of data within a table is dictated by the clustered index. When applied, data rows are stored in the order of the index key. Each table has the limitation of having only one clustered index.

8. Contrast between a primary key and a unique key.

Both primary key and unique key constraints enforce uniqueness in a column or set of columns. However, a primary key constraint also enforces the NOT NULL constraint, while a unique key constraint does not.

9. Explain the significance of database normalization.

The process of organizing data to reduce redundancy and dependency is called database normalization. It involves dividing large tables into smaller tables and establishing relationships to minimize data duplication and ensure data integrity.

10. Define a stored procedure.

A precompiled set of one or more SQL statements stored in the database is called a stored procedure. These procedures can accept input parameters, execute operations on data, and return results to the caller.

11. What is the role of SQLOS in MS SQL?

For MS SQL Server DBAs, SQLOS is pivotal in overseeing system resources, managing memory, CPU, and I/O operations, and ensuring error handling and recovery. It's essential for optimizing performance, scalability, and reliability through efficient resource management and governance mechanisms.

12. Explain the Ghost Cleanup Process in

MS SQL DBA.

- The Ghost Cleanup Process in MS SQL Server is a background task responsible for removing ghost records, also known as deleted records, from database pages.
- When a record is deleted from a table, SQL Server marks it as a ghost record rather than immediately removing it physically.
- This process helps prevent unnecessary bloating of the database and ensures efficient utilization of storage resources.

SQL Server Database Administrator Salary

13. Discuss the importance of database backups.

Database backups play a crucial role in protecting data and enabling disaster recovery. They empower DBAs to recover data in situations such as accidental deletions, corruption, or hardware failures, ensuring uninterrupted business operations.

14. Define the function of SQL Server Agent.

SQL Server Agent automates administrative tasks like scheduling backups, managing jobs, and maintaining databases. It equips DBAs with the tools to create jobs, schedules, and alerts, facilitating efficient management and monitoring of SQL Server instances.

15. How do you address performance issues in SQL Server?

Resolving performance challenges involves analyzing query execution plans, monitoring server activity using tools like SQL Server Profiler and Performance Monitor, identifying bottlenecks, and optimizing queries and database configurations to enhance performance.

16. What is DCL in MS SQL DBA?

In MS SQL Server, DCL, or Data Control Language, is a subset of SQL used to manage access to database data. DCL commands focus on permissions, authorization, and security, such as GRANT, REVOKE, and DENY, which regulate user and role privileges to database objects and data.

17. What are some of the main authentication modes that MS SQL DBA Server supports?

Authentication Modes in MS SQL Server:

- **Windows Authentication (Integrated Security):** Windows Authentication, also known as Integrated Security, utilizes Windows user accounts for authentication. It leverages existing Windows credentials to grant access to SQL Server databases, enhancing security and simplifying user management.
- **SQL Server Authentication:** SQL Server Authentication allows users to authenticate directly with SQL Server using a username and password stored within the SQL Server database. It provides flexibility for environments without Windows domains or when Windows authentication is not feasible.

18. Explain Mirroring in MS SQL.

- Database mirroring in MS SQL Server ensures high availability and disaster recovery by maintaining two database copies on separate server instances.
- One instance serves as the principal server, hosting the primary database, while the other acts as the mirror server, keeping an exact replica.
- Transaction log records are continuously transferred from the principal to the mirror server to maintain synchronization.
- In case of a principal server failure, automatic

failover to the mirror server occurs, minimizing downtime and ensuring continuous database access.

MS SQL DBA Training

Conclusion

These **MS SQL DBA Interview Questions and Answers** will surely land you a job as a MS SQL DBA. Our MS SQL Interview Questions and Answers are a result of months of hard work that went into the curation of these questions. By learning these questions, students will touch almost all topics in MS SQL briefly which will give them an overall knowledge on the topic, which guarantees a win at the interview.

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