€TRAINING

Advanced Microsoft SQL

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Introduction:

This training program covers SQL and database management comprehensively, from fundamental concepts to advanced techniques in SQL Server environments. It prepares participants for effective database management across different organizational contexts.

Program Objectives:

At the end of this program, participants will be able to:

- Explain MS SQL storage engines and their characteristics, including transactional and analytical options.
- Describe database transactions and demonstrate effective management techniques for ensuring data integrity.
- Obtain database metadata to understand structure, schema, and relationships within the database.
- Utilize MS SQL GUI tools for efficient database administration, including query optimization and performance tuning.
- Perform database backup, recovery, and data import/export operations using MS SQL Server tools and utilities.
- Discuss the features and benefits of MS SQL, highlighting its scalability, security features, and support for high availability.
- Use built-in MS SQL functions for data manipulation, aggregation, and analysis, and demonstrate proficiency in joining data from multiple tables.

Targeted Audience

- Team leaders seeking professional development in MS SQL.
- IT Team Leader.
- MS SQL developer
- IT manager
- IT department managers.
- Project managers.
- Systems designers.

Program Outline:

Unit 1:

Basic SQL Concepts:

- Basic SELECT Statement Practice Problems.
- Microsoft SQL Server and T-SQL Microsoft SQL variant language.
- Differences between MS SQL and Python.
- Understanding data types and their importance in database management systems.
- Exploring the principles of database management.

Unit 2:

Structured Query Language SQL:

- Nested Queries in MS SQL.
- Operation Vs Nested query in DBMS.
- Practical applications of SQL in real-world scenarios.
- Utilizing SQL to manipulate data efficiently.

Unit 3:

Database Objects and Optimization:

- Database Objects in DBMS.
- Nested Queries in MS SQL.
- Indexing in Databases.
- Best practices for database design and normalization.
- Implementing advanced database queries.

Unit 4:

MS SQL Server Administration:

- MS SQL Server Keys, Constraints, and Indexes.

- MS SQL Server Database Administration.
- SQL Server Programming.
- Advanced techniques in database administration and optimization.
- Managing data integrity through constraints and indexes.

Unit 5:

Advanced SQL Techniques:

- Auditing the execution of Code Template Mappings.
- SQL Server Comparison Operators.
- SQL Server Joins.
- Implementing data integration strategies using SQL.
- Enhancing performance with efficient SQL queries.

Unit 6:

Database Integration and Tools:

- SSMS and MySQL Workbench.
- Creating SQL loader mappings to Extract Data from Flat Files.
- Creating SAP extraction mappings.
- Understanding data integration between different database systems.
- Implementing data extraction techniques using SQL.

Unit 7:

SQL Integration with ERP Systems:

- Retrieving data from the SAP System.
- Creating Code Template CT mappings.
- Setting options for Code Templates in Code Template Mappings.
- Integrating SQL with enterprise resource planning ERP systems.
- Managing data transformations and mappings effectively.

Unit 8:

Advanced SQL Functions and Procedures:

- Implementing transactions and error handling in SQL Server.
- Utilizing Common Table Expressions CTEs in MS SQL.
- Optimizing query performance using SQL Server Execution Plans.
- Integration of SQL with other programming languages and environments.

Unit 9:

SQL Server Security:

- SQL Server Security and Permissions.
- Implementing row-level security in SQL Server.
- Auditing and monitoring SQL Server activities.
- Using encryption to protect sensitive data in SQL Server.
- Best practices for securing SQL Server environments.

Unit 10:

SQL in Big Data and NoSQL Environments:

- Big Data and SQL.
- Introduction to NoSQL databases and their advantages.
- Using SQL with distributed data processing frameworks Apache Hadoop, Spark.
- Managing large-scale data with SQL in cloud environments.
- Implementing data warehousing and analytics using SQL.