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Course Name : PRACTICAL MICROSOFT SQL SERVER: QUERY MASTERY
Duration : 3 Days (Physical Classroom / Virtual Live Instructor)
Skill Level : Beginner

COURSE DESCRIPTION:
Unlock the potential of relational databases with our comprehensive Microsoft SQL Server course designed for beginners. Whether you're an aspiring developer, data analyst, or IT professional, this course guides you through the fundamental concepts of Microsoft SQL Server, a leading relational database management system. From crafting basic queries and mastering WHERE clauses to exploring advanced topics like indexes, joins, and subqueries, this hands-on course provides a solid foundation in database management. Dive into the intricacies of SQL Server functions, date manipulations, and constraint implementations, and discover how to optimize database performance through indexing. With practical exercises, real-world examples, and a focus on problem-solving, this course equips you not only with theoretical knowledge but also the practical skills to navigate the database landscape confidently.

As a bonus, we delve into the world of coding challenges, applying SQL concepts to tackle real-world problems and enhance your problem-solving abilities. By the end of this course, you'll be proficient at designing and querying databases, understanding foreign keys and constraints, and confidently handling real-world scenarios. Join us on this learning journey and unlock the potential of Microsoft SQL Server, propelling your skills in data management and SQL proficiency. Enroll now and embark on a transformative learning experience that opens doors to a multitude of opportunities in the vast realm of databases and data-driven applications.

WHAT WILL YOU LEARN?
This Microsoft SQL Server course empowers you to master SQL queries, delve into advanced topics such as joins and subqueries, and optimize database performance using indexes. Explore functions for effective data manipulation, understand constraints and foreign keys, and apply your skills to real-world problem-solving. By the end, you'll confidently design and manage databases, setting the stage for success in database administration and development.

PREREQUISITE:
Beginners. No programming/database experience is required.

METHODOLOGY:
This program will be conducted with interactive lectures, PowerPoint presentations, discussions, and practical exercises. This course can be conducted as instructor-led (ILT) or virtual instructor-led training (VILT).

JOB SCOPE:
Upon completion of this course, candidates may pursue the following career paths:

- Database Administrator (DBA)
- SQL Developer
- Data Analyst
- Data Engineer
- Database Tester

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MODULE 1: WELCOME
- Welcome
- Introduction to the Course
- Importance of Microsoft SQL Server in Database Management

MODULE 2: SQL SERVER OVERVIEW AND USE CASES
- What is Microsoft SQL Server?
- Why Choose SQL Server?
- Use Cases and Applications

MODULE 3: SQL SERVER INSTALLATION
- Downloading and Installing Microsoft SQL Server
- Configuring SQL Server
- Setting up the dev environment

MODULE 4: SQL SERVER MANAGEMENT STUDIO (SSMS)
- Overview of SQL Server Management Studio
- Setting up SSMS
- Exploring SSMS Interface

MODULE 5: BASIC QUERIES
- Understanding SQL Syntax in SQL Server
- Executing Basic SELECT Queries
- Using WHERE for Conditional Filtering
- Combining Conditions with AND, OR
- Sorting Data in Ascending and Descending Order
- Using ORDER BY with Multiple Columns

MODULE 6: DISTINCT, ORDER BY
- Eliminating Duplicates with DISTINCT
- Understanding DISTINCT Keyword
- Removing Duplicate Rows from Results
- Enhancing Sorting with ORDER BY
- Sorting Results using ORDER BY
- Combining DISTINCT and ORDER BY

MODULE 7: FUNCTIONS IN SQL
- Overview of SQL Server Functions
- Commonly Used Functions (e.g., COUNT, AVG, SUM)
- Manipulating Strings with Functions
- Concatenation, Substring, Length, etc.
- Mathematical Operations with Functions
- Round, Ceiling, Floor, etc.

MODULE 8: DATE AND DATE FUNCTIONS
- Understanding Date and Time in SQL Server
- Date Data Types and Formats
- Extracting and Manipulating Dates
- Date Arithmetic and Formatting

MODULE 9: GROUP BY AND HAVING
- Grouping Data with GROUP BY
- Aggregating Data Using GROUP BY
- Applying Conditions to Grouped Data
- Combining GROUP BY and HAVING

MODULE 10: CONSTRAINTS
- Overview of Constraints in Database Design
- Types of Constraints (e.g., NOT NULL, UNIQUE)
- Adding Constraints during Table Creation
- Modifying Existing Tables with Constraints

MODULE 11: FOREIGN KEY
- Understanding Foreign Keys
- Importance of Foreign Keys in Relational Databases
- Creating Foreign Key Relationships

MODULE 12: INDEX
- Introduction to Indexing
- Role of Indexes in Database Performance
- Creating and Managing Indexes

MODULE 13: ON DELETE
- Managing Relationships with ON DELETE
- Exploring ON DELETE Actions
- Cascading, Set Null, Restrict, and No Action

MODULE 14: JOINS
- Joining Tables in SQL
- Understanding INNER JOIN, LEFT JOIN, RIGHT JOIN
- Combining Multiple Tables in Queries

MODULE 15: SUBQUERIES
- Working with Subqueries
- Introduction to Subqueries
- Implementing Subqueries in SELECT, WHERE, and FROM Clauses

MODULE 16: USING EXISTS, ANY, ALL
- Applying EXISTS, ANY
- ALL in Subqueries
- Examples of Subquery Optimization

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MODULE 17: VIEWS
- Creating and Managing Views
- Introduction to Views in MySQL
- Creating, Modifying, and Dropping Views

MODULE 18: SOLVING LEETCODE SQL QUESTIONS
- Applying SQL to Problem Solving
- Overview of LeetCode and SQL Challenges
- Step-by-Step Problem Solving with SQL

CONCLUSION
- QA
- Useful References and Books
- Feedback

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