

Duration of Training: 4 weekends

Syllabus

Database Fundamentals What is a database? What is MySQL? Introduction to MySQL & MySQL workbench Database Design

Introduction To Database Design

Learn Database Normalization with the help of a case study Learn ER Modeling with a Case Study

SQL Basics

How To Create A Database & MySQL DataTypes How to use SELECT in MySQL How to query data using Where clause in MySQL How to use Insert Into in MySQL How to Delete & Update data in MySQL

Data Sorting

How sorting is done in MySQL using ORDER BY, DESC and ASC How to use Group By in MySQL How to use Wildcards in MySQL Using Regular Expressions & Wild Cards in MySQL

Functions

Ultimate guide to Functions used in MySQL How to use Aggregate Function in MySQL

Must Know Stuff!

All about Null value & Keyword in MySQL How to use Auto Increment in MySQL How to use Alter, Drop & Rename function in MySQL How to use Limit keyword in MySQL

Most Dreaded Topics!

Using Sub-Queries in MySQL How to use Joins in MySQL How to use Unions in MySQL How to use Views in MySQL

Advance SQL Course Syllabus

Module 1 - SAMPLE DATABASES

- 1. Installing Oracle Sample Databases
- 2. Conceptual Diagram of Entity Model
- 3. Visio Diagram of Database
- 4. Primary Key and Foreign Key; RDBMS Basics
- 5. 1NF, 2NF & 3NF Normal Forms.
- 6. OLTP DB
- 7. Business Scenarios
- 8. Reviewing
- 9. Data Warehouse Database
- 10. HierarchyID Based Trees
- 11. Creating, Saving & Emailing Database Diagrams
- 12. pubs Book Publishing Sample Database Overview
- 13. Northwind Food & Drink Supplier Sample DB
- 14. Advanced Review of pubs Database Diagram
- 15. Advanced Review of Northwind Database Diagram
- 16. Accounting DB Review: GL, AP, AR & Inventory

Module 2 - DATABASE DESIGN

- 1. Understanding Logical Data Modelling
- 2. Working with Table Column Data Types
- 3. New; DATE, TIME, DATETIMEOFFSET & DATETIME2
- 4. CREATE TABLE by Script & Using Object Explorer
- 5. Primary Key and Foreign Key Constraints
- 6. Database Diagram Design in Object Explorer
- 7. Logical Database Modelling with Visio
- 8. Relational Database Design with Visio
- 9. Reverse Engineering a Database with Visio
- 10. ALTER TABLE and Changing Tables by MS
- 11. Designing Compressed Tables & Indexes
- 12. Partitioned Table, Partition Function and Scheme
- 13. Create Partition & Manage Partition Wizards
- 14. The Data Compression Wizard
- 15. Code, Translate and Lookup Table Design
- 16. Database Design and Programming Standards

Module 3 - SELECT STATEMENT

- 1. Inner Join, Self Join, Outer Join and Cross Join
- 2. Basic SQL SELECT and SELECT INTO Statements
- 3. Sorting SELECT Query Results with ORDER BY
- 4. Exploring CTEs, Nested & Correlated Subqueries
- 5. SELECT with UNION, UNION ALL, ROLLUP and CUBE
- 6. Date & Time, String and Math System Functions
- 7. Exploring Configuration & System Statistical Functions

- 8. Dynamic SQL for Automatic Query Generation
- 9. The GROUP BY Clause & Aggregate Functions
- 10. Working with Hierarchy ID and Metadata Functions
- 11. TOP, ROW NUMBER, RANK, DENSE RANK and NTILE
- 12. Understanding Recursive Queries & Tree Processing
- 13. Creating Comma-Delimited Lists with XML Path
- 14. Crosstab (Matrix) Query with CTE and PIVOT
- 15. Building Multidimensional Crosstab Query
- 16. Architecting Business Intelligence Dashboards

Module 4 - MODIFY DATA

- 1. INSERT INTO Statement with VALUES Clause
- 2. Understanding INSERT and SELECT Subquery
- 3. INSERT and EXECUTE Statement
- 4. Data Removal with the DELETE Statement
- 5. Data Modification with the UPDATE Statement
- 6. Working with the MERGE Statement
- 7. Synchronizing Two Tables with MERGE
- 8. Modifying Data with Cursors, Subqueries & JOINs
- 9. Logged and Minimally-Logged Operations
- 10. Creating Audit Trail with the OUTPUT Clause
- 11. Combining INSERT with CTE and OUTPUT
- 12. UPDATE with CTE, OVER & PARTITION BY
- 13. Deleting Duplicate Rows with CTE
- 14. Updating Binary Mask and CSV List Columns
- 15. Using UPDATE with the FROM Clause
- 16. UPDATE with GROUP BY Aggregate Subquery

Module 5 - DATA INTEGRITY

- 1. Data Integrity Constraints in AdventureWorks2008
- 2. Surrogate Key Architecture, Natural Key & GUID
- 3. PK, FK, UNIQUE & CHECK Constraints; Defaults
- 4. Data Integrity Enforcement with Triggers
- 5. Working with Data Integrity Templates
- 6. Stored Procedure vs. Ad-hoc SQL Script
- 7. Entity, Domain and Referential Database Integrity
- 8. Entity Integrity Definition Using Management Studio
- 9. Listing and Scripting Data Integrity Objects
- 10. Understanding Domain Integrity Enforcement
- 11. Implementing Referential Integrity Constraints
- 12. Creating User Defined Integrity Objects
- 13. Exploring Table-Level CHECK Constraints
- 14. Enterprise-Level Business Rules Enforcement
- 15. Transactions for Data Integrity Maintenance
- 16. Comparing and Synchronizing Databases

Module 6 - PROGRAMMABILITY

- 1. Stored Procedure Design and Programming
- 2. Exploring Table-Valued, XML & OUTPUT Parameters
- 3. Stored Procedures in AdventureWorks2008 Database
- 4. DML Data Manipulation Language Triggers
- 5. Trigger Examples with DELETED & INSERTED Tables
- 6. Discovering INSTEAD OF Triggers & AFTER Triggers
- 7. DDL Data Definition Language Triggers
- 8. Designing & Creating Views Modifying Data

- 9. Table-Valued, Scalar-Valued & Inline Functions
- 10. Understanding Plan Guides for High Performance
- 11. Temporary Tables, Table Variables & tempdb
- 12. EXECUTE AS for Execution Context Definition
- 13. Multiple, Nested, Cascading & Recursive CTE-s
- 14. Grouping Sets for Multiple Groupings Definition
- 15. Spatial Data Types: Geography & Geometry
- 16. Applying Manual Debugging Techniques

Module 7 - TRANSACT-SQL

- 1. TRANSACT-SQL, Batch, and Scripts
- 2. BEGIN, COMMIT, ROLLBACK TRANSACTION
- 3. Using TRY...CATCH Blocks for Exception Handling
- 4. Locks, Isolation Levels and Deadlocks
- 5. Snapshot Isolation for OLTP Concurrency
- 6. PROGRAMMING STATEMENTS in Transact-SQL
- 7. User Defined and System Stored Procedures
- 8. Working with Linked Servers & 4-part Reference
- 9. Exploring CROSS APPLY & OUTER APPLY Operators
- 10. DBA Script Generator Using Query Editor
- 11. Discovering Undocumented T-SQL Features
- 12. Dynamic PIVOT and Matrix (Crosstab) Scripts
- 13. INTERSECT and EXCEPT Set Operators
- 14. FILESTREAM Data and SPARSE Columns
- 15. Optimizing with Database Engine Tuning Advisor
- 16. Debugging with the Transact-SQL Debugger