

SQL SERVER & T-SQL (DEV)

In-house Classroom Training– Instructor Led

Complete Practical & Real-time Training Sessions



A Unit of SequelGate Innovative Technologies Pvt. Ltd.

→ ISO Certified Training Institute

→ Microsoft Certified Partner

Training Highlights

- ✓ Complete Practical and Real-time Scenarios
- ✓ Session wise Material and Practice Labs
- ✓ Session wise Notes & Doubts Clarifications
- ✓ Certification Material & Resume Preparation
- ✓ 24x7 LIVE Server Access with Real-time Databases
- ✓ Interview Preparation and Guidance
- ✓ Technical Support and Placements Assistance
- ✓ One Real-time Project and FAQs with Answers
- ✓ Mock Interview and Course Completion Certificate

All Training Sessions are Completely Practical & Real-time

Every session includes Study Material and Practice Material. Course includes total of 16 Sessions.

Total Course Fee: INR 4000/-

SQL School (SequelGate Innovative Technologies Pvt. Ltd.), #108/2RT, Street No 2, Road No 1,
Landmark :Beside SR Nagar Bus Stop, SR Nagar, Hyderabad - 38, India.

CREDITS: ISO Certified Learning Center. Microsoft Certified Learning Partner. www.sqlschool.com

SQL SERVER T-SQL (DEV) LIVE Training

All Our Training Sessions are COMPLETELY PRACTICAL & REALTIME with Hands-On Lab.

SQL Basics & SQL Server Installation (Demo)

- ✓ What is Data? What is Database?
- ✓ What is Data? Database? File Store Limitations?
- ✓ Why Microsoft SQL Server? Advantages
- ✓ What is SQL? What is T-SQL? Differences. T-SQL
- ✓ Versions and Editions of SQL Server - Overview
- ✓ Session Wise Plan, Material and Real-time Project
- ✓ LAB PLAN - 24x7 LIVE Server (Online Lab) Course
- ✓ How to install SQL Server - Step by Step Guidelines
- ✓ SQL Server 2016 Software - Server Installation
- ✓ SQL Server 2016 - Tools Installation, Verification
- ✓ SQL Server 2014 / 2012 Software Installation
- ✓ H/W & S/W Requirements. Server Configuration
- ✓ Instance, Service, Authentication, Collation
- ✓ Installation Errors, Solutions. Server Name
- ✓ SQL Server Tools - SQL Server Management Studio
- ✓ Client Connectivity Tests, Browsing Servers

DAY 1: SQL BASICS - DDL, DML, SELECT (Demo)

- ✓ Testing Installation, Server Connection
- ✓ Defining New Sessions for Queries. Session IDs
- ✓ Basic SQL for Beginners. Databases, Tables
- ✓ What is SQL? T-SQL? Basic SQL in SSMS
- ✓ DDL and DML Statements - Creating Databases
- ✓ Table Creation - Columns and Data Types
- ✓ Issues with Digital Data into Characters
- ✓ INSERT / Store Data into SQL Server Tables
- ✓ Single Row and Multiple Row Inserts with NULL
- ✓ SELECT Queries, Basic Operators: IN, BETWEEN
- ✓ UPDATE Statements with / without Conditions
- ✓ TRUNCATE Statement - DELETE Comparisons
- ✓ SYSTEM DATABASES - Purpose, Importance
- ✓ CLIENT - SERVER Architecture (TDS), Statistics
- ✓ SQL Native Client (SNAC) and OLE-DB Providers

DAY 2: SQL SERVER DATABASE DESIGN

- ✓ SQL Server Databases - Purpose and Design
- ✓ SQL Database Architecture - Logical / Physical View
- ✓ Database Properties - Files - Types - Storage
- ✓ Data Files : Purpose and Sizing. Architecture
- ✓ Filegroups : Purpose and Grouping Options.
- ✓ Log files : Sizing, Placement, Detailed Architecture
- ✓ Pages, Extents (Uniform, Mixed). Data Allocation
- ✓ Write Ahead Log, Log Sequence Number (LSN)
- ✓ Virtual Log File (VLF) and MINI LSN. Audits
- ✓ DB Creation using GUI - Adding Files, Filegroups
- ✓ DB File and Filegroup Options. GUI Limitations
- ✓ Database Creation using T-SQL Scripts. SYNTAX
- ✓ Database with Filegrowth, Auto Growth, MAXSIZE
- ✓ mdf, ndf, ldf and Custom & Dynamic Extensions
- ✓ Planning and Designing Very Large Databases
- ✓ Adding Filegroups and Files. Size Modifications
- ✓ CHAR versus VARCHAR Differences - Type, Size

DAY 3: TABLE DESIGN & SIMPLE QUERIES

- ✓ Table Design - Creation. Columns - Data Types,
- ✓ Routing Tables to File Groups, Advantages
- ✓ Schemas - Purpose, Creation and Usage
- ✓ Table Design using T-SQL Scripts - Syntax
- ✓ Table Design using User Interface - Options
- ✓ Data Types, Length, NULLS, Conventions
- ✓ BATCH and TRANSACTIONS - Insert Examples
- ✓ UNION, UNION ALL Operators. Differences,
- ✓ CREATE,ALTER,DROP,INSERT,UPDATE, DELETE
- ✓ SELECT Queries with Schemas, Column Aliases
- ✓ T-SQL Data Types, NULLS. Computed Columns
- ✓ DB Log Files for DML - Logged & Non Logged
- ✓ Comparing DELETE and TRUNCATE Statements
- ✓ Operators: IN, BETWEEN, IS, AND, OR, EXISTS
- ✓ Default Schema and Default Filegroup for Table
- ✓ Basic Sub Queries - SELECT, MIN/ MAX.
- ✓ Temporary Tables: Local and Global. Synonyms

DAY 4: CONSTRAINTS & KEYS

- ✓ Constraints and Keys - Table Data Integrity
- ✓ Normal Forms - Types, Relational Database Design
- ✓ OLTP Database Model & BCNF - with PK / UQ

DAY 5: JOINS -- SUB QUERIES -- QUERY TUNING

- ✓ JOINS - Purpose and Types, Use Case Scenarios
- ✓ JOIN - Types, Queries and Report Importance
- ✓ CROSS JOIN in detail. Examples and WHERE

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<ul style="list-style-type: none"> ✓ NULL, NOT NULL and Default Nullable Columns ✓ UNIQUE KEY Constraints: Uniqueness, Nulls ✓ PRIMARY KEY Constraint: Priority, Limitations ✓ FOREIGN KEY Constraint: References, Relations ✓ CASCADED Foreign Keys - UPDATE, DELETE ✓ CHECK Constraints: Properties, Conditions ✓ CHECK Constraints: Column Checks, Operators ✓ DEFAULT Constraints: Properties and Limitations ✓ Relations with Tables across Multiple Schemas ✓ Identity Property with / without PRIMARY KEY ✓ Composite Primary Keys & Recommendations ✓ Self Referencing Keys & Usage. Using Unicode ✓ Adding / Modifying Constraints, Keys & Data Types ✓ Naming Conventions - Constraints and Columns ✓ Normal Forms: Types, Purpose & Usage. Examples ✓ BCNF: Boycee-Codd Normal Form and Usage 	<ul style="list-style-type: none"> ✓ INNER JOIN in detail. WHERE and ON ✓ Comparing INNER JOIN with CROSS JOIN ✓ OUTER JOINS in detail. LEFT, RIGHT, FULL Joins ✓ SELF JOINS with INNER/OUTER Join Scenarios ✓ JOINS with more tables. Precedence Order ✓ Query Tuning and Optimization with Schemas ✓ HASH JOIN - Example, Scenario and HEAPs ✓ MERGE JOIN - Example, Scenario and Usage ✓ LOOP JOIN - Example, Scenario and Usage ✓ JOIN Queries and UNION, UNION ALL Operators ✓ Basic Sub Queries and Joins. Alternate Syntax ✓ A Real-world Case Study understanding Joins ✓ End User Access to SQL DBs - Reporting Tools ✓ MS EXCEL, SSRS, POWER BI, SHAREPOINT, TABLEAU, etc..
<p>DAY 6: VIEWS & FUNCTIONS - LEVEL 1</p> <ul style="list-style-type: none"> ✓ VIEWS - Data Access and Table Operations ✓ Defining Views on Tables - Syntax, Options, Uses ✓ Views as Stored SELECT Statements, Data Access ✓ SCHEMABINDING and ENCRYPTION Advantages ✓ Issues with Views For Data Validations - Solutions ✓ Cascaded Views and WITH CHECK OPTION, ✓ Orphan Views - Scenarios and Real world Solutions ✓ Common System Views For Metadata Access ✓ Views on Joined Tables - Partitioned Views ✓ Data Synchronization and Metadata Refresh ✓ Functions: Types, Purpose and Usage ✓ Scalar Value Returning Functions - Examples ✓ Inline Table Value Functions - Dynamic Joins ✓ Multi-Line Table Value Returning Functions - Usage ✓ Table Variables with Functions. Table Data Type ✓ Variables & Parameters in SQL Server. Differences ✓ Dynamic Query Conditions - Return and Returns ✓ SCHEMABINDING and ENCRYPTION with Functions 	<p>DAY 7: FUNCTIONS, QUERIES & VIEWS - LEVEL 2</p> <ul style="list-style-type: none"> ✓ Queries with GROUP BY, HAVING, ON & WHERE ✓ ROLLUP & CUBE - Sub Totals, Grand Totals ✓ ROLLUP of Table Data. Aggregations, ORDER BY ✓ CUBE on Table Data - Purpose & Usage. ✓ Queries with GROUPING()in SELECT, HAVING ✓ HAVING versus WHERE Conditions - Differences ✓ Query Execution Order with ORDER BY, ROLLUP ✓ System Functions, Metadata. Object Name, IDs ✓ Date and Time Functions, Date Format, Styles ✓ SOUNDEX, DIFFERENCE, COALESCE, ISNULL ✓ CAST, CONVERT, TRY_PARSE, RANK Functions ✓ PATINDEX, CHARINDEX, RTRIM, REVERSE ✓ CASE with/without Expressions, PIVOT ✓ MERGE Statement - MATCHED & NONMATCHED ✓ Miscellaneous System Functions & Conditions ✓ Views for Queries & Sub Queries with Functions ✓ Real-time Case Study on Online Medicare Project - Joins, Functions, Sub Queries
<p>DAY 8: STORED PROCEDURES - LEVEL 1</p> <ul style="list-style-type: none"> ✓ Stored Procedures - Purpose, Syntax, Properties ✓ Compilation, Precompilation and Query Optimization (QO) ✓ Variables and Data Types in Stored Procedures ✓ Parameters and Data Types in Stored Procedures ✓ Stored Procedure Executions - Syntax, Options ✓ Stored Procedures for Data Validations & Identity ✓ Stored Procedures for Dynamic SQL Queries. ✓ Stored Procedures for Data Reporting, Tuning ✓ Important System Procedures For Metadata ✓ Important Extended Procedures For Application 	<p>DAY 9: STORED PROCEDURES - LEVEL 2</p> <ul style="list-style-type: none"> ✓ Stored Procs for (Dynamic) Sub Queries ✓ Stored Procs for Recursive and Nested Queries ✓ OUTPUT Parameters in Stored Procedures ✓ Common Table Expressions (CTE) & In-Memory ✓ Row Number and Sub Queries, Self Joins ✓ Stored Procedures for Parameterized CTE ✓ Using CTE for Table Data Operations - DML ✓ CTE for DML and DDL in Stored Procedures ✓ Recursive CTEs and Self Joins with SPs ✓ Precautions for Recursive CTEs - Performance

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<ul style="list-style-type: none"> ✓ IF.. ELSE, IF .. ELSE IF, IIF Conditions. PRINT ✓ Error Handling Techniques: TRY, CATCH, THROW ✓ Dynamic Parameters and Variables with Views ✓ Default Parameter Values, Data Types and NULL ✓ Batch Executions with Stored Procedures. Variants ✓ Unicode Data and Dynamic SQL Queries. sysname 	<ul style="list-style-type: none"> ✓ Query Tuning Operations with CTEs ✓ CTE Advantages and Pre-compilations ✓ Dynamic SQL Queries with Parameters ✓ Cached Plans and Memory Store for SPs ✓ RECOMPILE Options and ENCRYPTION Options ✓ ANCHOR & RECURSIVE Members. Termination
<p>DAY 10: STOREDPROCEDURES – LEVEL 3</p> <ul style="list-style-type: none"> ✓ SQL Injection Attacks and Parameter Sniffing ✓ SQL Injection Vulnerables - Data Type Validations ✓ Table Value Parameters (TVP) - Purpose, Types ✓ User Defined Table Data Types and TVP Usage ✓ READONLY Parameters, Table Types: User Defined ✓ Error Handling with Table Valued Parameters ✓ Startup Stored Procedures: Configuration Property ✓ Server Startup, Auto Logging with Stored Procs ✓ Extended Stored Procedures - Purpose, Options ✓ Stored Procedures for Dynamic Calendar Data ✓ Cursors - Benefits. Using SProcs with Cursors ✓ FORWARD_ONLY and SCROLL Cursors Types. ✓ STATIC and DYNAMIC Cursors. ABSOLUTE Fetch ✓ LOCAL and GLOBAL Cursors & Scope, Reusability ✓ KEYSET DRIVEN Cursor Types & Performance ✓ Embedding Cursors in Procedures and Functions ✓ SPs with Cursors @ Dynamic Data Formatting 	<p>DAY 11: TRIGGERS & TRANSACTIONS</p> <ul style="list-style-type: none"> ✓ Triggers - Purpose and Types. Scope Of Usage ✓ DML Triggers - Events, Types and Examples ✓ FOR / AFTER Triggers - Syntax, Importance ✓ INSTEAD OF Triggers - Syntax, Importance ✓ INSERTED & DELETED Tables with DML Triggers ✓ Triggers for Disabling DML Operations. Priority ✓ Triggers for DML Audits, Data Sampling ✓ Database Level and Server Level Triggers ✓ Triggers for Bulk Operations, Updatable Views ✓ Triggers for Data Distribution and JOINS. ✓ Performance Impact on Tables - Precautions ✓ ACID Properties and Transactions. Atomic ✓ EXPLICIT, IMPLICIT Transactions - Blocking ✓ IMPLICIT Transactions - Database Settings ✓ AUTOCOMMIT Transactions - Usage Examples ✓ Nested Transactions, COMMIT / ROLLBACK ✓ Save Point Options with Explicit Transactions ✓ LOCK HINTS : READPAST, NOLOCK,HOLDLOCK
<p>DAY 12: INDEXES & TUNING OPTIONS</p> <ul style="list-style-type: none"> ✓ Indexes: Architecture (Page Level) and Types ✓ Clustered Indexes - Architecture, Fragmentation ✓ Non Clustered Indexes - Architecture, References ✓ SORT_IN_TEMPDB, FILLFACTOR and PAD_INDEX ✓ Execution Plans and Query Optimization (QO) ✓ Execution Plan: Table Scan,Index Scan,Index Seek ✓ INCLUDED INDEXES - Index Seeks, Query Tuning ✓ COLUMN STORE Indexes - Advantages, Usage ✓ FILTERED Indexes - Sizing Advantages, Limitations ✓ ONLINE and OFFLINE Indexes - UNIQUE Indexes ✓ Indexes on Join Options - MERGE and LOOP Joins. ✓ Primary Key Index, Composite Indexes Precautions ✓ STATISTICS - Purpose and Types. Query Tuning ✓ Column Statistics - Creation and Usage. ✓ Index Statistics - Auto Creation with Indexes, ✓ STATISTICS with Indexes and Query Conditions. ✓ Materialized Views / Indexed Views - Tuning ✓ Query Optimizer (QO) for Index Pages, Data Pages ✓ Limitations of Indexes - Impact on DML ✓ Real-world Considerations For Indexes 	<p>DAY 13: SQL SERVER ARCHITECTURE</p> <ul style="list-style-type: none"> ✓ Client - Server Architecture of SQL Server ✓ SQL Server Tools - Connections, TDS Packets ✓ TCP / IP, Named Pipes, Shared Memory ✓ SQL Native Client (SNAC) and OLE DB Drivers / ✓ ISO - OSI Model of Connections, Encryptions ✓ Query Processing and Query Optimizer (QO) ✓ SQL Server Architecture For Database Engine, ✓ Architecture - Query Processor and Storage ✓ Architecture - Optimizer, Mini LSN, MDAC ✓ Architecture - SQL Engine, Manager and Buffers ✓ Architecture - Write Ahead Log, Lazy Writer ✓ Architecture - SQLOS Threads and Schedulers ✓ SQL DB Architecture - RAID Levels (S/W, H/W) ✓ Log Sequence Numbers (LSN), Time Mapping. ✓ Log File Architecture - Virtual Log Files ✓ Log File Architecture - Mini LSN & Degree Of Parallelism ✓ DB Catalogs, CLR Integration ✓ MDAC Components : Usage and Remote Connections

DAY 14, 15, 16: REAL-TIME PROJECT

Phase 1: Understanding Project Requirement - Banking
Database Design with File Groups, Schemas
Table Design with File Groups, Schemas
Defining Constraints, Relations, Synonyms

Phase 2: Views for Data Inserts, Joined Queries
Common Reporting Functions, User Access
Queries for PIVOT, DENSE_RANK, PARTITION BY
INSERTS with PIVOT, Calculations, Sub Queries

Phase 3: End-to-End Implementation - Data Validations
Stored Procedures for Dynamic Data Inserts
Updatable Views and Triggers for DML, Indexes
ADVANCED, COMPLEX Stored Procedures in T-SQL
DB Documentation Tools, Deployment Options

3rd Party Tools - **Dell LiteSpeed** for SQL Server 2014 & SQL Server 2016
Reading Log Files and Data Audits & 3rd Party Tools

RESUME PREPERATION > MOCK INTERVIEW >> CERTIFICATION GUIDANCE

ALL TRAINING SESSIONS ARE COMPLETELY PRACTICAL, REAL-TIME.

Pre-requisites for this SQL Server T-SQL Course:

This is a starter course, no pre-requisites required. Course includes free orientation classes for starters.

About Trainer:

Mr. Sai Phanindra Tholeti is a Database Consultant working for his own company - *SequelGate Innovative Technologies Pvt. Ltd.* With more than 11 years of expertise and passion for SQL Server, Administration (SQL DBA) and Business Intelligence (MSBI) - Mr. Sai provides Data Hosting, Business Consulting to Corporate Clients. All his training sessions are completely **practical**, **real-time** and highly **interactive**. Complete profile at <http://www.linkedin.com/in/saiphanindra>

For Free Demo / Further Clarifications, please reach us.

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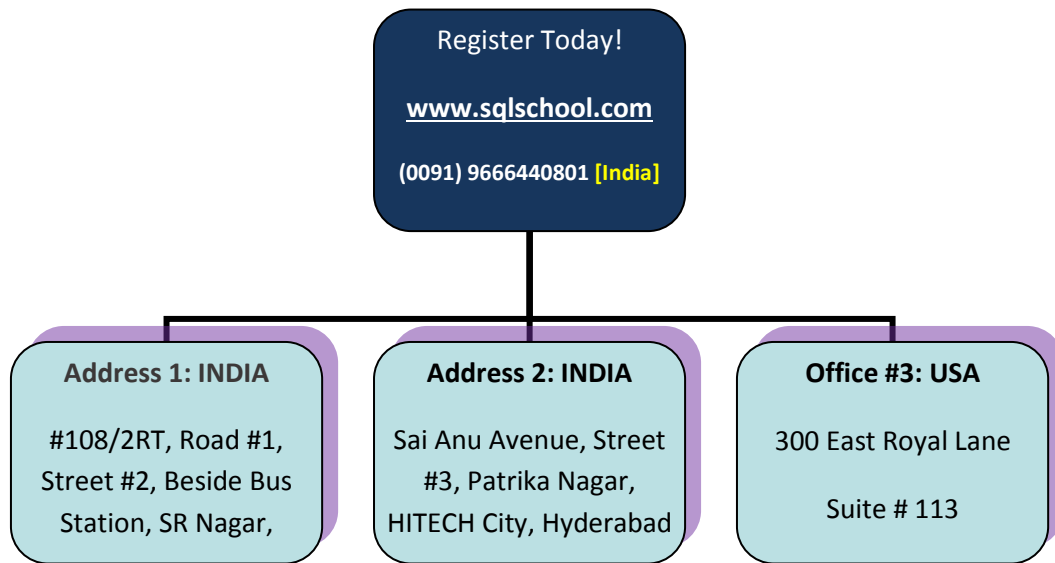
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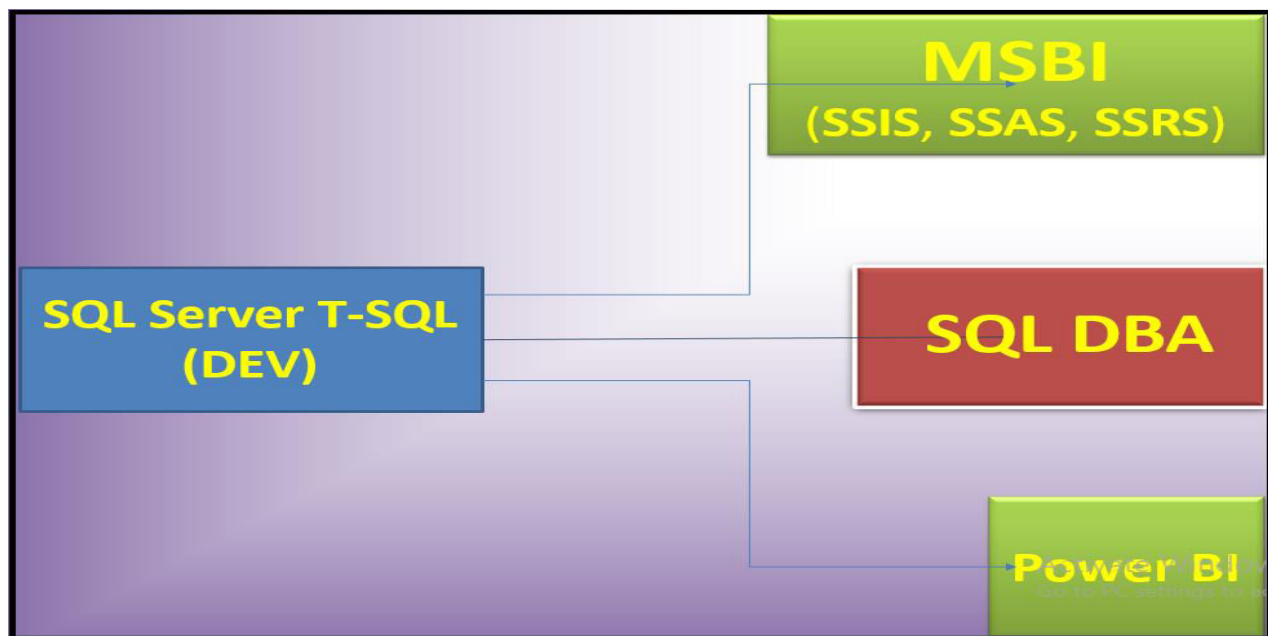
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