

# SQL SERVER & T-SQL (SQL DEVELOPER Course)

Complete Practical & Real-time Trainings



*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.

# SQL SERVER, T-SQL (DEVELOPER) LIVE Online Training

SQL Server & T-SQL Developer Training with Azure			
	PLAN A	PLAN B	PLAN C
Duration	3.5 Weeks	4.5 Weeks	5.5 Weeks
Completely Real-time	✓	✓	✓
Resume, Job Support	✓	✓	✓
Real-time Project (Banking)	✓	✓	✓
Performance Tuning Classes	✗	✓	✓
MCSA Certification: 70-761	✗	✓	✓
MCSA Certification: 70-762	✗	✗	✓
Azure SQL Database DEV	✗	✗	✓
Total Course Fee	INR 6000/- USD 100	INR 9000/- USD 150	INR 12000/- USD 200

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

## PART 1 : SQL Server Basics, Queries and Development (Applicable for Plan A, B, C)

### Chapter 1 : SQL Server (2017/2016, 2014) Installation

- ✓ Introduction to Data, Database, DBMS, RDBMS
- ✓ Why Microsoft SQL Server? Advantages (Technical/Usage)
- ✓ SQL Server - Career Options, Certifications, Projects
- ✓ SQL Server Components : DB Engine, Database Types
- ✓ What is SQL? What is T-SQL? Differences. Why T-SQL?
- ✓ Versions and Editions of SQL Server - Overview
- ✓ Session Wise Plan, Material and Real-time Project Details
- ✓ LAB PLAN - 24x7 LIVE Server (Online Lab) For the Course
- ✓ SQL Server 2016/2017 Server Installation Steps
- ✓ SQL Server 2014 / 2012 Versions and Differences
- ✓ System Databases in SQL Server, Configuration Options
- ✓ Instance Types : Default and Named Instances.
- ✓ Service, Authentication and Instance Collation Properties
- ✓ SQL Server Tools - SQL Server Management Studio (SSMS)
- ✓ SQL Server Tools For Mac, Ubuntu and Linux
- ✓ Connection to Local Servers, Remote Server, Cloud Server

### Chapter 2: BASIC SQL QUERIES - LEVEL 1

- ✓ What is SQL? Why T-SQL? Basic SQL Queries in SSMS
- ✓ DDL and DML Statements - Creating & Using Databases
- ✓ Testing Installation to Local and Remote Labs
- ✓ Server Connections, MASTER DB Concept and Session IDs
- ✓ Basic SQL for Starters - Introducing Databases, Tables
- ✓ Table Creation (Basic Level) - Columns and Data Types
- ✓ INSERT / Store Data into SQL Server Tables - Options
- ✓ INSERT versus INSERT INTO Options. Performance Difference
- ✓ Single Row Inserts and Multiple Row Inserts
- ✓ SELECT Queries with Row and Column Filters - Syntax
- ✓ AND, OR, NOT, EXISTS, IN, NOT IN, BETWEEN
- ✓ IS, IS NOT, NOT BETWEEN and Other SQL Operators
- ✓ UPDATE Statements with / without Conditions. SET
- ✓ DELETE Statements with Conditions. Logging Options
- ✓ TRUNCATE Statement - DELETE Comparisons, Logging
- ✓ CLIENT - SERVER Architecture (TDS) & Client Statistics
- ✓ QUERY STATISTICS with SQL Queries: Execution Time

### Chapter 3: BASIC SQL QUERIES - LEVEL 2

- ✓ Table Design - Creation. Columns - Data Types, Length
- ✓ Table Design using T-SQL Scripts - Syntax, Examples
- ✓ Table Design using User Interface - Usage Options
- ✓ Data Types, Length, NULLs and Naming Conventions
- ✓ BATCH and TRANSACTION Concepts - Insert Examples
- ✓ CREATE, ALTER, DROP -- INSERT, UPDATE, DELETE
- ✓ SELECT Queries with Schema on Tables, Column Aliases
- ✓ T-SQL Data Types and NULL Values. Computed Columns
- ✓ Database Log Files for DML - Logged, NonLogged Options
- ✓ Comparing DELETE and TRUNCATE Statements - TLog Files
- ✓ T-SQL Operators: IN, BETWEEN, IS, AND, OR, EXISTS
- ✓ Default Schema and Default Filegroup for Table Design
- ✓ Basic Sub Queries - SELECT, MIN/ MAX. Column Aliases
- ✓ SET Operations in T-SQL : UNION, INTERSECT, MINUS
- ✓ UNION, UNION ALL Operators. Differences, Row Order
- ✓ Local Temporary Tables, Global Temporary Tables
- ✓ Batch Versus TDS Packets. Client - Server Architecture

### Chapter 4: DATABASE & TABLE ARCHITECTURE

- ✓ SQL Server Databases - Purpose and Design Options
- ✓ SQL Database Architecture - Logical and Physical View
- ✓ Database Properties - Files - Types - Storage Options
- ✓ Data Files : Purpose and Sizing. Detailed Architecture
- ✓ Filegroups : Purpose and Grouping Options. Properties
- ✓ Log files : Sizing, Placement & Detailed Architecture
- ✓ Pages, Extents (Uniform, Mixed). Data Allocation Process
- ✓ Write Ahead Log (WAL) and Log Sequence Number (LSN)
- ✓ Virtual Log File (VLF) and MINI LSN. Operation Audits
- ✓ Database Creation using GUI - Adding Files, Filegroups
- ✓ Database File and Filegroup Options. GUI Limitations
- ✓ mdf, ndf, ldf and Filegrowth, Autogrowth Options
- ✓ Adding Filegroups and Files. Size, Property Modifications
- ✓ Routing Tables to Database File Groups, Advantages
- ✓ Schemas - Purpose, Creation and Usage with Tables
- ✓ Schemas TRANSFER with Tables and Synonyms
- ✓ CHAR versus VARCHAR Differences - Type, Size Allocations
- ✓ Planning and Designing Very Large Databases (VLDB)

### Chapter 5: CONSTRAINTS and KEYS

- ✓ Constraints and Keys - Ensuring Table Data Integrity
- ✓ Normal Forms - Types, Relational Database (RDB) Design
- ✓ OLTP Database Model & BCNF - Relations with PK / UQ
- ✓ NULL, NOT NULL and Default Nullability for Columns
- ✓ UNIQUE KEY Constraints: Importance, Uniqueness, Nulls
- ✓ PRIMARY KEY Constraint: Properties, Priority, Limitations
- ✓ FOREIGN KEY Constraint: References, Relations & Usage
- ✓ FOREIGN KEY Constraints : Relating Two or more tables
- ✓ CASCADED Foreign Keys and Relations - UPDATE, DELETE
- ✓ CHECK Constraints: Properties, Conditions and Usage
- ✓ CHECK Constraints: Multi Column Checks & Operators Use
- ✓ DEFAULT Constraints: Properties, Usage and Limitations
- ✓ Relations with Tables across Multiple Schemas, Usage
- ✓ Identity Property with / without PRIMARY KEY, Usage
- ✓ Composite Primary Keys & Practical Use. Recommendations
- ✓ Self Referencing Keys & Usage. Using Unicode References
- ✓ Adding / Modifying Constraints, Keys and Data Types
- ✓ Naming Conventions For Constraints, Columns and Tables
- ✓ Normal Forms - Types, Purpose and Usage. With Examples
- ✓ BCNF: Boyce-Codd Normal Form and Practical Usage

### Chapter 6: JOINS, SUB QUERIES & NESTED QUERIES

- ✓ JOINS - Purpose and Types, Use Case Scenarios
- ✓ JOIN - Types, Queries and Importance of Reports
- ✓ CROSS JOIN in detail. Examples and Conditions @ WHERE
- ✓ INNER JOIN in detail. Examples with WHERE and ON
- ✓ Comparing INNER JOIN with CROSS JOIN for Conditions
- ✓ OUTER JOINS in detail. LEFT, RIGHT and FULL Joins
- ✓ SELF JOINS with INNER / OUTER Joins. Usage Scenarios
- ✓ Working with Self Joins on non key columns, advantages
- ✓ JOINS with more than 2 tables. Syntax, Precedence Order
- ✓ Query Optimization Considerations with Schema References
- ✓ Deciding the best Join Type, Order and Query Options
- ✓ JOIN Queries with Options and UNION, UNION ALL Operators
- ✓ Basic Sub Queries and Joins. Alternate Syntax & Queries
- ✓ Using ON and WHERE for Join Conditions. Working with NULLs
- ✓ Using SubQueries for Self Joins and Outer Joins
- ✓ Working with Nested Queries and Nested Sub Queries
- ✓ Using Sub Queries and Nested Sub Queries with Outer Joins
- ✓ End User Access to SQL Databases - Reporting Tools, Options
- ✓ A Real-world Case Study understanding Joins & Queries
- ✓

**Real-time Case Study 1 : Online Medicare Database (DESIGN)**

**One - One Mock Interview + Project Work Starts**

## Chapter 7: VIEWS & FUNCTIONS - LEVEL 1

- ✓ VIEWS - Benefits For Data Access, Table Operations
- ✓ Defining Views on Tables - Syntax, Options, Uses
- ✓ Views as Stored SELECT Statements, Data Access
- ✓ SCHEMABINDING and ENCRYPTION Options - Advantages
- ✓ Issues with Views For Data Validations - Solutions
- ✓ Cascaded Views and WITH CHECK OPTION, Advantages
- ✓ Orphan Views - Scenarios and Realworld Solutions
- ✓ Common System Views For Metadata Access, Object IDs
- ✓ Views on Multi Level Tables. Joins. Partitioned Views
- ✓ Data Synchronization and Metadata Refresh with Views
- ✓ Functions: Types, Purpose and Usage. Return Values
- ✓ Scalar Value Returning Functions - Examples, Usage
- ✓ Inline Table Value Returning Functions - Dynamic Joins
- ✓ Multi-Line Table Value Returning Functions - Usage
- ✓ Table Variables and Usage with Functions. Table Data Type
- ✓ Variables and Parameters in SQL Server. Usage Differences
- ✓ Dynamic Query Conditions with Functions. Return, Returns
- ✓ SCHEMABINDING and ENCRYPTION Options with Functions

## Chapter 8: FUNCTIONS, QUERIES & VIEWS - LEVEL 2

- ✓ GROUP BY Queries for Data Reporting - Options
- ✓ GROUP BY with HAVING Conditions and GROUPING()
- ✓ GROUPING SETS Clause and Equivalents. Rollup and Cube
- ✓ ROLLUP and CUBE - Sub Totals, Grand Totals, Aggregates
- ✓ ROLLUP of Table Data. Column Aggregations. ORDER BY
- ✓ CUBE on Table Data - Purpose & Usage. CASE Queries
- ✓ HAVING versus WHERE and ON Conditions - Usage Differences
- ✓ Query Execution Order with Joins, ORDER BY and ROLLUP
- ✓ Important System Functions and Metadata. Object Name, IDs
- ✓ Date and Time Functions, Date Format, Styles and DATEDIFF
- ✓ SOUNDEX, DIFFERENCE, CASE, ISNULL, COALESCE Functions
- ✓ CAST, CONVERT, TRY\_PARSE, TRY\_CONVERT Functions
- ✓ ROW\_NUMBER, RANK, DENSE\_RANK Functions. Row Sequences
- ✓ PATINDEX, CHARINDEX, RTRIM / LTRIM, REVERSE Functions
- ✓ CASE Statement (with/without Expressions), PIVOT Usage
- ✓ MERGE Statement - MATCHED and NONMATCHED Operations
- ✓ Miscellaneous System Functions and Dynamic Conditions
- ✓ Using Views for Queries and Sub Queries with Functions

## Chapter 9: STORED PROCEDURES - LEVEL 1

- ✓ Stored Procedures - Purpose, Syntax, Properties and Types
- ✓ Compilation, Precompilation and Query Optimization (QO)
- ✓ Variables - Usage and Data Types in Stored Procedures
- ✓ Parameters - Usage and Data Types in Stored Procedures
- ✓ Stored Procedure Executions - Syntax, Alternate Options
- ✓ Stored Procedures for Data Validations & Missing Identity
- ✓ Stored Procedures for Dynamic SQL Queries. Views & SPs
- ✓ Stored Procedures for Data Reporting. Advantages, Tuning
- ✓ Important System Procedures For Metadata Access. Usage
- ✓ Important Extended Procedures For Application Operations
- ✓ IF.. ELSE, IF .. ELSE IF, IIF Conditions. PRINT statements
- ✓ Error Handling Techniques in T-SQL: TRY, CATCH, THROW
- ✓ Dynamic Parameters and Variables. Examples with Views
- ✓ Default Parameter Values, Data Types and NULL Values
- ✓ Batch Executions with Stored Procedures. Variants
- ✓ Unicode Data and Dynamic SQL Queries. sysname Data

## Chapter 10: STORED PROCEDURES - LEVEL 2

- ✓ Stored Procedures for Sub Queries, Dynamic Sub Queries
- ✓ Stored Procedures for Recursive and Nested Queries
- ✓ OUTPUT Parameters in Stored Procedures. Usage Options
- ✓ Common Table Expressions (CTE) and In-Memory - Syntax
- ✓ Row Number and Rank Generation, Sub Queries, Self Joins
- ✓ Stored Procedures for Parameterized CTE (Sub) Queries
- ✓ Using CTE for Table Data Operations - DML & Retrieval
- ✓ CTE for DML and DDL Operations in Stored Procedures
- ✓ Using Recursive CTEs and Self Joins with Stored Procedures
- ✓ Precautions for Recursive CTEs - Performance Impact
- ✓ Query Tuning Operations with CTEs. Query Store Options
- ✓ CTE Advantages and Limitations - Precompilations
- ✓ Dynamic SQL Queries with Parameters and Variables
- ✓ Cached Plans and Memory Store for Stored Procedures
- ✓ RECOMPILE Options and ENCRYPTION Options - Scenarios
- ✓ Identity Inserts - Manual Sequence. Dynamic Inserts
- ✓ ANCHOR Members and RECURSIVE Members. Termination

## Chapter 11: STORED PROCEDURES - LEVEL 3

- ✓ SQL Injection Attacks & Vulnerables: Parameter Sniffing
- ✓ Stored Procedure for ReadWrite Parameters - Usage
- ✓ READONLY Parameters, Table Data Type (User Defined)

## Chapter 12: TRIGGERS, LINKED SERVERS, XML

- ✓ Triggers - Purpose and Types. Scope Of Usage
- ✓ DML Triggers - Events, Types and Practical Usage
- ✓ FOR / AFTER Triggers - Syntax, Usage and Importance

- ✓ Error Handling with Table Valued Parameters in SProcs
- ✓ Startup Stored Procedures: Configuration, Server Property
- ✓ Server Startup, Auto Log Options with Stored Procedures
- ✓ Extended Stored Procedures - Purpose, Options & Usage
- ✓ Using Extended Stored Procedures with User Procedures
- ✓ Stored Procedures for Dynamic Values, Calendar Data
- ✓ Cursors - Benefits, Syntax. Using SProcs with Cursors
- ✓ FORWARD\_ONLY and SCROLL Cursors Types. Limitations
- ✓ STATIC and DYNAMIC Cursors Types. ABSOLUTE Fetch
- ✓ LOCAL and GLOBAL Cursor Types & Scope, Reusability
- ✓ KEYSET DRIVEN Cursor Types & Performance Options
- ✓ Embedding Cursors in Procedures and User Functions
- ✓ SPs with Cursors @ Dynamic Data Loads, Data Formatting
- ✓ Memory Limitations with Cursors with SP Recompilations

- ✓ INSTEAD OF Triggers - Syntax, Usage and Importance
- ✓ INSERTED & DELETED Memory Tables with DML Triggers
- ✓ Memory Usage with INSERTED/DELETED Tables. Usage
- ✓ Triggers for Disabling DML Operations. Trigger Priority
- ✓ Triggers for DML Operation Audits and Data Sampling
- ✓ Triggers for Data Distribution to Multiple Tables / Views
- ✓ Database Level Triggers and DDL Operations - FOR Type
- ✓ Server Level Triggers and DDL Operations - FOR Type
- ✓ Triggers for Bulk Operations, Updatable Views (Indexed)
- ✓ Defining Linked Servers and Remote Join Queries
- ✓ Import / Export Options and Triggers with Linked Servers
- ✓ Recursive Triggers, XML Options, XML Queries
- ✓ Real-time Considerations with Triggers - Precautions
- ✓ Stored Procedures with Triggers and Advantages
- ✓ Limitations with Triggers for DDL & DML Operations

### Chapter 13: TRANSACTIONS & ISOLATION LEVELS

- ✓ Introduction to Transactions - Types
- ✓ Need for Transactions, Transaction Scenarios
- ✓ ACID Properties and Transaction Types. Atomic Property
- ✓ EXPLICIT, IMPLICIT Transactions - Query Blocking
- ✓ IMPLICIT Transactions - Usage, Database Settings
- ✓ AUTOCOMMIT Transactions - Advantages, Usage Examples
- ✓ OPEN Transactions and Audits. OPENTRAN commands
- ✓ Nested Transactions and COMMIT / ROLLBACK Rules
- ✓ SavePoint Options with Explicit Transactions, Rollbacks
- ✓ LOCK HINTS : READPAST, NOLOCK, HOLDLOCK - Usage
- ✓ Isolation Levels : Types of Isolation Levels
- ✓ ReadCommitted & Read UnCommitted Isolation Levels
- ✓ Snapshot Isolation, Serializable Isolation Levels
- ✓ ReadCommitted Snapshot Isolation with Tempdb Usage
- ✓ Impact of Isolation Levels with Concurrent Database Users
- ✓ Choosing the Best Isolation Level in OLTP Environment
- ✓ TRY..CATCH..THROW & Error Handling with Transactions
- ✓ Stored Procedures with with Triggers and Transactions
- ✓ Choosing Transaction Type and Lock Hints
- ✓ Real-world Considerations For Transactions

### Chapter 14: INDEXES and QUERY TUNING OPTIONS

- ✓ Indexes: Architecture (Page Level), Purpose and Types
- ✓ Clustered Indexes - Architecture, Fragmentation Issues
- ✓ Non Clustered Indexes - Architecture, Column References
- ✓ SORT\_IN\_TEMPDB, FILLFACTOR and PAD\_INDEX Options
- ✓ Execution Plans and Query Optimization (QO) Techniques
- ✓ Execution Plan - Table Scan, Index Scan and Index Seek
- ✓ INCLUDED INDEXES - Purpose, Index Seeks, Query Tuning
- ✓ COLUMNSTORE Indexes - Advantages, Usage Examples
- ✓ COLUMNSTORE Indexes - Limitation @ Filtered Index
- ✓ COLUMNSTORE Indexes, Online Indexes - Memory Options
- ✓ FILTERED Indexes - Sizing Advantages and Limitations
- ✓ ONLINE Indexes and OFFLINE Indexes - UNIQUE Indexes
- ✓ Materialized Views / Indexed Views - Tuning Options
- ✓ Working with UNIQUE Indexes on Tables, Views
- ✓ Query Optimizer (QO) Options for Index Pages, Data Pages
- ✓ Limitations of Indexes - Impact on DML and SELECT
- ✓ Primary Key Index, Composite Indexes and Precautions
- ✓ RID and Index Key Concepts. Index Page - Data Page Arch"
- ✓ Real-world Considerations For Indexes (Tables, Views)

### Chapter 15: SQL SERVER ARCHITECTURE

- ✓ Client - Server Architecture of SQL Server
- ✓ SQL Server Tools - Connection Options, TDS Packets
- ✓ Protocols : TCP / IP, Named Pipes, Shared Memory
- ✓ SQL Native Client (SNAC) and OLE DB Drivers / Providers
- ✓ ISO - OSI Model of Data Connections, Encrypted Data
- ✓ Query Processing and Query Optimizer (QO) Components
- ✓ SQL Server Architecture For Database Engine, LCM Options
- ✓ Architecture - Query Processor and Storage Engine

### REAL-TIME PROJECT (BANKING)

- ✓ Phase 1: Understanding Project Requirement - Banking
- ✓ Phase 1: Database Design with FileGroups, Schemas
- ✓ Phase 1: Table Design with FileGroups, Schemas
- ✓ Phase 1: Defining Constraints, Relations, Synonyms
- ✓ Phase 2: Views for Data Inserts, Joined Queries, newid
- ✓ Phase 2: Common Reporting Functions, User Access
- ✓ Phase 2: Queries for PIVOT, DENSE\_RANK,



- ✓ Architecture - Query Parser, Optimizer, Mini LSN, MDAC
- ✓ Architecture - SQL Engine, SQL Manager and Query Buffers
- ✓ Architecture - Write Ahead Log (WAL), Lazy Writer Threads
- ✓ Architecture - SQLOS Threads and Task Schedulers, CLR
- ✓ SQL Database Architecture - RAID Levels (S/W, H/W)
- ✓ Log Sequence Numbers (LSN) and Time Mapping. Audits
- ✓ Log File Architecture - Virtual Log Files and Usage
- ✓ Log File Architecture - Mini LSN & Degree Of Parallelism
- ✓ DB Catalogs, CLR Integration and MDAC Components
- ✓ LSN Timestamps and MINILSN. Background Threads @ SQL

- PARTITION BY
- ✓ Phase 2: INSERTS with PIVOT, Calculations, Sub Queries
  - ✓ Phase 3: End-to-End Implementation - Data Validations
  - ✓ Phase 3: Stored Procedures for Dynamic Data Inserts
  - ✓ Phase 3: Updatable Views and Triggers for DML, Indexes
  - ✓ Phase 3: DML Operations with PIVOT and Pagination
  - ✓ Phase 3: ADVANCED, COMPLEX Stored Procedures in T-SQL
  - ✓ Phase 3: DB Documentation Tools, Deployment Options
  - ✓ Testing the Database using Visual Studio Tools
  - ✓ GO LIVE : ON-PREMISE Deployment
  - ✓ Go LIVE : Deployment to Azure SQL Server (For Plan C)

Real-time Case Study 1 : Online Medicare Database (DESIGN) - One - One Mock Interview + Project Work Starts

## PART 2 : Advanced Queries and Performance Tuning (Applicable for Plan B, C)

### Chapter 16: QUERY TUNING - CTE, JOIN OPTIONS, STATS

- ✓ Identifying Long Running Queries & Activity Monitor
- ✓ Using Important Dynamic Management Objects (DMV, DMF)
- ✓ Avoiding Self Joins - Real-world Scenarios
- ✓ Avoiding Sub Queries and Conditions - Real-world Scenarios
- ✓ Comparing Sub Queries & Joins - Performance Baselines
- ✓ Using CTEs for Memory Based Query Pre-Fetch
- ✓ Query Tuning and Resource Optimization Options
- ✓ STATISTICS - Purpose and Types. Query Tuning Options
- ✓ Column Statistics - Creation and Usage. Advantages
- ✓ Index Statistics - Auto Creation with Indexes, Usage
- ✓ Manual Update of Column Statistics - GUI & Scripting
- ✓ Role of Statistics in Query Tuning Process - Options
- ✓ STATISTICS with Indexes and Query Conditions. Updates
- ✓ LIVE Query Statistics (SQL Server 2016), Table Statistics
- ✓ HASH JOIN - Examples and Precautions. Usage
- ✓ MERGE JOIN - Examples and Precautions. Usage
- ✓ LOOP JOIN - Examples and Precautions. Usage
- ✓ OUTER APPLY, Hybrid and Multi - Level Joins
- ✓ Indexes on Join Options - MERGE and LOOP Joins. Usage
- ✓ Real-world Scenarios @ ERP (LIVE) Database

### Chapter 17: PARTITIONS and FULL TEXT SEARCH

- ✓ Big Data - Performance Considerations
- ✓ Table Partitions and Query Tuning Options
- ✓ Partition Functions and Partition Schemes
- ✓ Partition Ranges, Values and Sort Orders
- ✓ Partitioning Un-partitioned Tables using Indexes
- ✓ Aligned / Indexed Partitioning and Performance
- ✓ Data Compression Types - ROW Level, PAGE Level
- ✓ Partition Numbers and Filtered Compression Concepts
- ✓ Managing Partitions and Query Tuning Options
- ✓ LIKE Operator - Limitations. Using Wild-cards
- ✓ Full Text Search (FTS) Configuration Options
- ✓ Full Text Search Service Activation - DB Level
- ✓ Filter Daemon Launcher Service - Purpose, Settings
- ✓ Database Catalogs (FTC) and Storage Locations
- ✓ Full Text (FT) Indexes for Query Tuning
- ✓ Full Text Columns and Primary Key Index
- ✓ Full Text Index For Searching Queries. Issues
- ✓ Full Population and Incremental Population
- ✓ CONTAINS() and FREETEXT() Functions
- ✓ Token Search, Inflectional Forms, Operators
- ✓ Data Populations and FILESTREAM with FTS
- ✓ FETCH, OFFSET and OUTPUT Options with FTS

## Chapter 18: INDEXED QUERIES, MISSING INDEXES

- ✓ Index Internals and Execution Plans
- ✓ Understanding Execution Plans, Statistics, Cost
- ✓ Index Fragmentation - Issues, Performance
- ✓ SAMPLED and DETAILED Query Scans. FillFactor
- ✓ Index Rebuilds (Online/Offline), Tuning Options
- ✓ Index Reorganization Process and Advantages
- ✓ Page, Row Compressions with Indexes - Cautions
- ✓ Filtered Indexes, Online Indexes, Indexes Views
- ✓ GAM, SGAM Pages, Metadata Header Info
- ✓ Filtered Indexes and Index Size Limitations
- ✓ Table Statistics & Query Tuning Options
- ✓ Handling Heaps, Clustered, and Nonclustered Indexes
- ✓ Fill Factor, Pad Index and Query Tuning
- ✓ Memory Pages & IO Resources : Query Performance
- ✓ MEMORY LEAKS & PAGE WAITS: Query Performance
- ✓ LATCH WAITS and Query Performance Impact

## Chapter 19: PERF. MONITORING, LIVE EXECUTION PLANS

- ✓ Memory Optimized Tables, Optimized Filegroups
- ✓ Memory Snapshot Settings and Real-world Usage
- ✓ Temporal Tables and SYSTEM\_VERSIONING
- ✓ Temporal Tables For DML Audits, Performance Impact
- ✓ In-Memory Tables Creation and Index Options
- ✓ Working with Extended Events & Performance Impact
- ✓ LIVE Query Statistics - Monitoring Options, Metrics
- ✓ LIVE Query Statistics - Tracing, and Baselining
- ✓ Collecting and Analyzing Data Using Extended Events
- ✓ Implementing Performance Baseline Methodologies
- ✓ Optimize the file configuration of your databases
- ✓ Use DMVs and gather DB Performance Metrics
- ✓ Memory Tables Versus Temp Tables/Table Variables
- ✓ LIVE Execution Statistics, Hash Plans, Performance
- ✓ Natively Compiled Stored Procedures, Performance
- ✓ Creating System Versioned Temporal Tables
- ✓ Querying and Modifications to Temporal Tables
- ✓ Bulk Inserts, OPENROWSET with Temporal Tables
- ✓ Tuning Bulk Inserts - Recovery Models & Logging
- ✓ Real-world Scenarios @ ERP (LIVE) Database

## Chapter 20: DATABASE TUNING ADVISOR (DTA) TOOL, DOP

- ✓ DTA: Usage, Sequential / Parallel Query Tuning
- ✓ DTA Tool with Profiler, Trace Tables, Cache
- ✓ Understanding Workload Files & Tables in Profiler
- ✓ SQL Profiler Tuning and Tuning Templates
- ✓ Database Tuning Advisor (DTA) - Usage
- ✓ DTA Tool for Procedure Cache, Reent Queries
- ✓ DTA Tool for Multi-Database Connections
- ✓ Understanding PDS Options with Indexes
- ✓ Choosing Correct Option (PDS) for Tuning
- ✓ Resource Governor - Resource Pools - Tuning
- ✓ Resource Workload Groups - Creation, Settings
- ✓ LOW, HIGH, MEDIUM Priority Queries - Resources
- ✓ Classifier Functions, Cost Based Optimization
- ✓ Query Priority, CPU / Memory / IO Limits
- ✓ Windows Fibres, Priority Boost, DOP Options
- ✓ Processor Settings and Counters. Thresholds
- ✓ Recommended Thread Counts and Fibres. Settings
- ✓ CHANGE\_TRACKING Options, Limitations
- ✓ BLOB and BULK Operations with DTA Tool
- ✓ DTA Tool - Limitations with Heaps, Transactions
- ✓ OPENROWSET Queries and Correlated Queries
- ✓ Real-world Scenarios @ ERP (LIVE) Database

## Chapter 21: PERFMON COUNTERS, DDM

- ✓ PERFMON Counters and PSSDIAG Tools
- ✓ Dynamic Data Masking (DDM) - Performance
- ✓ Secured Column Access - DDM Functions
- ✓ Impersonation Options with Data Masking
- ✓ Index Management Options - SQL 2016, 2017
- ✓ Distributed Replay Controller Tool, SCOM
- ✓ Data Migration Assistant (DMA) Tool
- ✓ PSSDIAG Tool - Performance Monitoring
- ✓ SQL Browser Server - TCP IP, Trace Flags
- ✓ CPU, Thread Management and Windows Fibres
- ✓ Priority Boost Settings and Windows Kernel
- ✓ Working with Machine Code @ SQL Server 2017
- ✓ Non-TSQL queries in SSMS - Performance Benefits
- ✓ Index Management Options - SQL Server 2016
- ✓ New Tuning Options - SQL Server 2017
- ✓ Performance Tuning - Checklist Activities

Real-time Case Study 3 : Implementing Query Tuning Concepts

Real-time Case Study 4 : Tuning an ERP Database (On-Premise)

## PART 3 : Azure SQL Database Development & Queries (Applicable for Plan C)

Azure SQL Database Queries	Azure SQL Database Dev / Programming
<p><b>Chapter 22: AZURE CLOUD &amp; AZURE SQL DATABASE</b></p> <ul style="list-style-type: none"> <li>✓ Introduction to Cloud. Need for Cloud, Advantages</li> <li>✓ Cloud Architecture Basics - IaaS, PaaS and SaaS</li> <li>✓ Advantages of Microsoft Cloud - Azure Platform</li> <li>✓ Advantages of Azure SQL Databases &amp; Tools</li> <li>✓ Service Models, Private &amp; Public Clouds</li> <li>✓ Azure SQL &amp; Databases - Need, Importance</li> <li>✓ Azure Sources - Types, Microsoft Market Place</li> <li>✓ Virtual Machines and Azure SQL Database in VMs</li> <li>✓ Comparing Azure with AWS and Google Cloud</li> <li>✓ Azure Cloud Subscription, Azure Portal Options</li> <li>✓ Azure Resources, Marketplace and Dashboards</li> <li>✓ Microsoft Azure Price Tiers &amp; Subscriptions</li> <li>✓ Azure Account Validations and Service Bands</li> <li>✓ Azure SQL Database Architecture Components</li> </ul>	<p><b>Chapter 26: AZURE SQL DATABASE MIGRATIONS</b></p> <ul style="list-style-type: none"> <li>✓ Database Scripting Wizard in SSMS</li> <li>✓ Scripting On-Premise Databases in T-SQL</li> <li>✓ Data Migration Assistant (DMA) Tool</li> <li>✓ Schema Generation and Compatibility Issues</li> <li>✓ Generating Data Scripts, Assessment, Schema Options</li> <li>✓ Prepare and Deploy Fixes. Database Snapshots</li> <li>✓ Resolving Database Migration Compatibility Issues</li> <li>✓ Partially Supported and Unsupported Functions</li> <li>✓ non SQL Server Database Migrations : MS Access, Oracle</li> <li>✓ SQL Server Migration Assistant (SSMA) Tool</li> <li>✓ Import from a BACPAC file using Azure portal</li> <li>✓ Import from a BACPAC file using SQLPackage</li> <li>✓ Import from a BACPAC file using PowerShell</li> <li>✓ Migrate Stored Procedures, In-Memory Tables</li> </ul>
<p><b>Chapter 24: AZURE SQL DATABASE CONFIGURATION</b></p> <ul style="list-style-type: none"> <li>✓ DTU : Data Transaction Units : Architecture, Pools</li> <li>✓ eDTUs and Elastic Pool, per Database Settings</li> <li>✓ EDTU Cost, eDTU max/min Limits and Performance</li> <li>✓ Elastic Pools &amp; Tier Selection - Recommendations</li> <li>✓ Database Name Identifiers, Naming rules &amp; restrictions</li> <li>✓ Server Names - Locations, Admin Users, Passwords</li> <li>✓ S1/S2/S3 DTU bands and Performance, Storage</li> <li>✓ Add-On Storage Options. Database Provisioning</li> <li>✓ Firewall Rules, IP Configuration Ranges</li> <li>✓ Azure Dashboard - Metrics, Notification Options</li> <li>✓ Azure SQL Database Collation, Connection Options, Tools</li> <li>✓ SQL Server Management Studio (SSMS) &amp; Visual Studio</li> <li>✓ SQL Server Data Explorer Tool in Azure Cloud</li> <li>✓ Need for OSM Workspace - Operations Management Suite</li> </ul>	<p><b>Chapter 28 : ADVANCED T-SQL QUERIES IN AZURE</b></p> <ul style="list-style-type: none"> <li>✓ Formatting Functions, STRING_SPLIT</li> <li>✓ CONTEXT_INFO and SESSION_CONTEXT</li> <li>✓ Function Determinism - RAND, ABS</li> <li>✓ EXECUTE AS and REVERT Options with SPs</li> <li>✓ Self Contained Sub Queries, ALL, ANY</li> <li>✓ GROUPING SETS with GROUP BY - Usage</li> <li>✓ LEAD and LAG for ROWOFFSET, CHECKSUM</li> <li>✓ Identify Lock Escalation &amp; Deadlocks</li> <li>✓ Identify ways to remediate deadlocks</li> <li>✓ Natively Compiled Stored Procedures</li> <li>✓ Consolidate Overlapping Indexes</li> <li>✓ .NET, PHP, Node.js, Java, Ruby, Python</li> <li>✓ Creating Azure SQL Databases in SSMS Tool</li> <li>✓ T-SQL Scripts for Azure SQL Database</li> </ul>
<p><b>Chapter 25: DEVELOP AZURE SQL DATABASE</b></p> <ul style="list-style-type: none"> <li>✓ Executing T-SQL Scripts in Azure</li> <li>✓ Creating Tables and Defining Constraints</li> <li>✓ Cascades, Constraint Rules and Index Rules</li> <li>✓ Clustered Indexes in Azure SQL Database Tables</li> <li>✓ Programming Objects: Stored Procedures in Cloud</li> <li>✓ Automated Recompilations, Complex Stored Procedures</li> <li>✓ Triggers and Memory Tables Architecture in Cloud</li> <li>✓ CTE : Common Table Expressions and Performance</li> <li>✓ User Defined Functions and Views for Data Reporting</li> </ul>	<p><b>Chapter 29 : Azure SQL DATABASE - QUERY TUNING</b></p> <ul style="list-style-type: none"> <li>✓ Azure SQL Database Configuration Plans</li> <li>✓ Using SQL Data Explorer Tool, Visual Studio</li> <li>✓ Azure Database Programming Concepts</li> <li>✓ Monitor Azure SQL Database performance</li> <li>✓ Monitor Azure SQL Database query plans</li> <li>✓ Determine best practice use cases for extended events</li> <li>✓ Compare the impact of Extended Events and SQLTrace</li> <li>✓ Firewall Settings and Row Level Security</li> <li>✓ Configure Azure SQL Database Performance Insight</li> </ul>

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](http://www.sqlschool.com)



<ul style="list-style-type: none"> <li>✓ Differences between On-Premise and Cloud SQL Databases</li> <li>✓ Executing T-SQL Scripts in Azure SQL Database</li> <li>✓ Linked Servers with On-Premise and Cloud</li> <li>✓ SSMS "Generate Script" Options, Advanced Options</li> </ul>	<ul style="list-style-type: none"> <li>✓ Design and Implement Elastic Pools for Azure SQL Database</li> <li>✓ Azure SQL Database JSON Features, Data Imports</li> <li>✓ Excel Reporting Options from Azure SQL Database</li> </ul>
<b>Real-time Case Study 5 : Scripting &amp; Migrating SQL DB to Cloud</b>	<b>Real-time Case Study 6 : Tuning an ERP Database (in Azure Cloud)</b>
<b>MOCK CERTIFICATION - 1 (MCSA : 70-761) + Material + Dump</b>	<b>MOCK CERTIFICATION - 2 (MCSA : 70-762) + Material + Dump</b>

**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.**

**INDIA:** Country Code - 0091 0 9666440801 (Mobile) / 9666640801(Office)  
**USA:** Country Code - 001 (510) 400-4845 (Office)

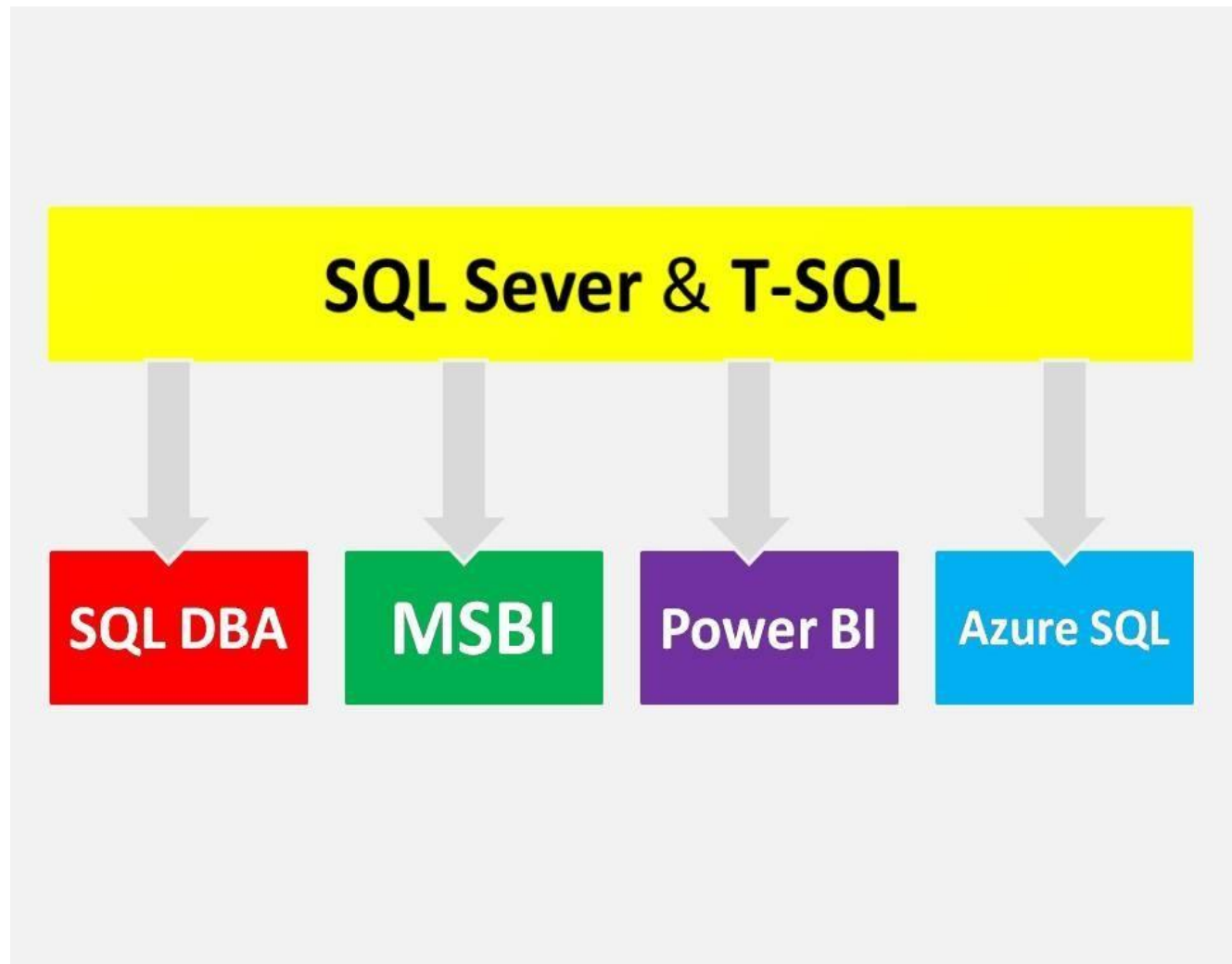
**Mail:** [contact@sqlschool.com](mailto:contact@sqlschool.com)  
**Skype:** SQL School Training Institute

**SQL School Training Institute**

An ISO 9001:2008 Certified Organization for Training & Microsoft Partner

Regd: **SequelGate Innovative Technologies Pvt. Ltd.**

Courses from SQL School Training Institute:



★ ISO Certified Training Institute

★ Microsoft Certified Partner

**ALL OUR TRAININGS SESSIONS ARE COMPLETELY PRACTICAL & REALTIME**

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](http://www.sqlschool.com)