

# SQL SERVER PERFORMANCE TUNING (QUERY TUNING COURSE)

Applicable for Starters as well as for Working Professionals

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 (QUERY) PERFORMANCE TUNING

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

## DAY 1: QUERY TUNING - CTE, JOIN OPTIONS, STATS

Identifying Long Running Queries & Activity Monitor \* Using Important Dynamic Management Objects (DMV, DMF) \* Using DMVs, DMFs for Query Audits, Procedure Cache \* Avoiding Self Joins - Real-world Scenarios \* Avoiding Sub Queries with - Real-world Scenarios \* Comparing Sub Queries & Joins - Performance Baselines \* Using CTEs for Memory Based Query Pre-Fetch CTEs for DML and Data Retrieval Operations \* CTEs with Cloning and Bulk Operations - Anchor Members, Recursive Members and Avoiding Sub Queries with CTEs \* Query Tuning and Resource Optimization Options \* HASH JOIN - Examples and Precautions. Usage \* MERGE JOIN - Examples and Precautions. Usage \* LOOP JOIN - Examples. Usage \* OUTER APPLY, Hybrid and Multi - Level Joins \* Comparing Execution Plans with Join Options \* LIVE Execution Plans with SSMS 2016, Higher Versions \* Comparing Query Costs with LIVE Execution Plans \* Indexes @ Join Options - MERGE and LOOP Joins with Indexes - Usage

## DAY 2: PARTITIONS and PARTITIONED VIEW

Big Data - Performance Considerations, Partitioning Views \* Query Optimizer in Query Tuning, Table Partitions \* Partition Functions and Partition Schemes \* Partition Ranges, Values and Sort Orders \* Partitioning Un-partitioned Tables using Indexes \* Partition SPLIT and MERGE Operations - Issues \* Aligned / Indexed Partitioning and Performance \* Data Compression Types - ROW Level, PAGE Level Partition Numbers and Filtered Compression Concepts \* Real-world Partitions with Filegroups \* Managing Partitions and Query Tuning Options \* Partitioned Views and Advantages - Common Myths \* Partitioned Views with CHECK - Consistency \* Manual Update of Column Statistics - GUI & Scripting \* Role of Statistics in Query Tuning Process - Options \* SET STATISTICS TIME ON and Stats Update Options \* Automated Data Routing @ Partition Views \* Execution Plans, Aligned / Indexed Partitions \* Linked Server Connections and Remote Partitions \* Using Linked Servers for Partitioned Views

## DAY 3: FULL TEXT SEARCH (FTS) - QUERY TUNING

Full Text Search (FTS) Architecture and fdhost.exe Files \* Protocols, Crawl Threads, FT Query Compilation, Execution \* Stoplists & thesaurus. Filter Daemon Manager, Word breakers \* MSFTESQL and MSFTEFD Threads. Population with FT Index \* Stemmer, Gatherer, Index Writer and Semantic Search Objects \* Full Text Search Service Activation and DB Settings. \* Database Catalogs (FTC) and Storage Locations \* Full Text (FT) Indexes Creation - GUI and T-SQL \* Full Text Columns and Unique Key Index Preferences \* Full Population and Incremental Population \* Change Tracking Options with FT Indexes - Benefits \* Important DMVs and DMFs with FTS Architecture \* CONTAINS(), FREETEXT() Functions \* Token Search, Inflectional Forms, Operators \* Performance Tuning with Full Text Indexes \* Using OPENROWSET with BLOB and BULKCOLUMN Data \* FT Indexes on Binary Large Object Data \* AND, OR, NOT OR, AND NOT, PHRASE, PREFIX, PROXIMITY. \* INFLECTIONAL FORMS, MAXIMUM PROXIMITY FTS Queries \* Monitoring FTS @ Dynamic Views & Functions \* Fulltext Filters, Stopwords, Stemmers.

## DAY 4: INDEXES and B-TREE

Index Internals and B Tree (Balanced Binary) Tree Structures \* Root Nodes, Branch Nodes and Branch Pages Structures \* GAM, SGAM Pages, Metadata Header Information \* bitmap Value for Space Allocations - DBCC PAGE \* bytemap Values and PFS - Page Free Space Allocation \* Trace Flags for Page Allocation and Metadata \* Index Fragmentation - Issues, Performance \* SAMPLED and DETAILED Query Scans. FillFactor \* Index Rebuilds (Online/Offline), Tuning Options \* Index Reorganization Process and Advantages \* Fragmentation Audit with DMVs, DMFs - Usage \* Using Database Plans (DMPs) for Index Updates \* Page, Row Compressions with Indexes - Cautions \* Row Compressions with Read-Only Databases - Tuning \* Filtered Indexes, Online Indexes, Indexes Views Filtered Indexes and Index Size Limitations \* Table Statistics & Query Tuning Options \* Handling Heaps, Clustered, and Nonclustered Indexes \* Fill Factor, Pad Index and Query Tuning

## DAY 5: MEMORY OPTIMIZATION, LIVE EXEC PLANS

Memory Optimized Tables, Optimized Filegroups \* Memory Snapshot Settings and Real-world Usage \* Working with Memory Tables and HDR Files \* Comparing Memory Tables with CTEs and Variables \* Memory Tables impact on VM (Virtual Memory) \* Using Memory Optimized Tables for Query Tuning \* In-Memory Tables Creation and Index Options \* Temporal Tables and SYSTEM\_VERSIONING \* Temporal Tables For DML Audits, Performance Impact \* Working with TimeStamp and SysStartTime Columns \* AS OF and FROM TO Keywords Usage \* GENERATED ALWAYS AS ROW START \* GENERATED ALWAYS AS ROW END \* Controlling and Monitoring Execution Plans \* Execution Plans: Estimated and Actual Plans \* LIVE Execution Plans - Usage and Query Statistics \* Algebrizer Component and Parser, Query Optimizer \* CPU Cost, IO Cost, Operator Cost, Row Count \* Comparing Execution Plans: XML and SQLPLAN \* Querying Plan Handles, Procedure Tuning Techniques

## DAY 6: DATABASE TUNING ADVISOR (DTA) TOOL, PERFMON

DTA: Usage, Sequential / Parallel Query Tuning \* DTA Tool with Profiler, Trace Tables, Cache \* DTA with Audit Tables and Databases - MultiSelect \* Understanding Workload Files & Tables in Profiler \* SQL Profiler Tuning and Tuning Templates \* Database Tuning Advisor (DTA) - Usage \* DTA Tool for Procedure Cache, Recent Queries \* DTA Tool for Multi-Database Connections \* Understanding PDS with Indexes, Memory \* Choosing PDS for Tuning, Memory Leaks \* BLOB and BULK Operations with DTA Tool \* DTA Tool - Limitations with Heaps, Transactions \* Disk IO and Slow Query Issues - Perfmon \* PERFMON Counters and PSSDIAG Tools \* Index Management Options - SQL 2016 \* Distributed Replay Controller Tool, SCOM \* CPU, Thread Management and Windows Fibres \* Priority Boost Settings and Windows Kernel \* Performance Tuning - Checklist Activities \* SEVEN STEP PROCESS for Query Tuning Operations \* FIVE PHASE PROCESS for Query Tuning Operations

**For registrations, please kindly contact us:**

We are available 24x7 @ +91 9666440801 / 040 64577244 [INDIA]

We are available 24x7 @ +1 510.400.4845 [USA]

Skype: SQL School Training Institute

Email: [contact@sqschool.com](mailto:contact@sqschool.com)

**ALL TRAINING SESSIONS ARE COMPLETELY PRACTICAL, REAL-TIME.**