SQL Server TSQL Full Stack

Thank you for contacting our **SQL School**. I am **Mr. Sai Phanindra**, trainer for this **MSSQL / SQL Server TSQL Training** Course. With 19+ Years of technical expertise exclusively on SQL & Database Technologies, I assure you 100% Practical, Step by Step Classes for this MSSQL course. My Profile @ https://www.linkedin.com/in/saiphanindra/

What is Database?
Database is a platform to store, extract and manage any type of data. Any amount of data.

What is SQL?
SQL (Structured Query Language) is a platform to connect, operate with database. We can store data, secure, report data and analyze data using SQL.

What is TSQL?
TSQL stands for Transact SQL. It is a Microsoft variant of SQL. TSQL is used to design, program and develop databases. It is very easier, faster and easier to work with.

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Who can join this course?

Anyone. There are NO Pre-requisites for this course. We start the classes from scratch, right from Basics. Placement Assistance is part of the course, purely based on merit & opportunities.

What about the Lab? What are the System Requirements?

Window OS; 6 GB RAM; Any Processor. We shall guide you for Software Installation, Practice.

SQL Server TSQL Course Plans:

	Course	Chapters	Applicable for	Duration
Plan A	1. MSSQL, TSQL Queries	Ch 1 to Ch 15	Data Analysts, Data Engineers, BI Developers	3 Weeks
Plan B	1. MSSQL, TSQL Queries 2. Query Tuning	Ch 1 to Ch 21	Data Analysts, Data Engineers, Developers	4.5 Weeks
Plan C	1. MSSQL, TSQL Queries 2. Query Tuning 3. TSQL Programming 4. Azure SQL Development	Ch 1 to Ch 40	Database Developers, Azure SQL Developers	7 Weeks

Module 1: SQL Server TSQL (MS SQL) Queries
Helpful for Data Analysts, Data Engineers, Data Scientists, BI Developers

Ch 1: Introduction
- ✓ Database Introduction
- ✓ Types of Databases
- ✓ Need for & ETL, DWH
- ✓ BI Implementations
- ✓ SQL Server Advantages
- ✓ Version, Editions of MSSQL
- ✓ Realtime Database Job Roles

Ch 2: Installations
- ✓ SQL Server 2022, 2019
- ✓ SSMS Tools Installation
- ✓ Database Engine (OLTP)
- ✓ SCM, Configuration Tools
- ✓ Instance Types, Uses
- ✓ Authentication Modes
- ✓ Collation, File Stream

Ch 3: SQL Basics - 1
- ✓ Need for Databases, Tables
- ✓ Need for SQL Commands
- ✓ DDL, DML & DQL Statements
- ✓ Database Creation @ GUI
- ✓ Data Operations @ GUI
- ✓ Session ID, SQL Context
- ✓ DB, Tables, Data @ SQL

Ch 4: SQL Basics - 2
- ✓ DDL Variants in MSSQL
- ✓ DML Variants in MSSQL
- ✓ INSERT & INSERT INTO
- ✓ SELECT & SELECT INTO
- ✓ Basic Operators in SQL
- ✓ Special Operators in MSSQL
- ✓ ALTER, ADD, TRUNCATE, DROP

Ch 5: Data Imports, Schemas
- ✓ Data Imports with Excel
- ✓ ORDER BY & UNION
- ✓ UNION ALL For Sorting Data
- ✓ Creating, Using Schemas
- ✓ Real-world Banking Database
- ✓ Table Migrations @ Schemas
- ✓ 2 Part, 3 Part & 4 Part Naming

Ch 6: Constraints, Index Basics
- ✓ Need for Constraints, Keys
- ✓ NULL, NOT NULL, UNIQUE
- ✓ Primary Key & Foreign Key
- ✓ RDBMS and ER Models
- ✓ Identity Property, Default
- ✓ Clustered Index, Primary Key
- ✓ Non Clustered Index, Unique

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Ch 7: Joins & Views Basics	Ch 8: Functions(UDF), Data Types	Ch 9: Stored Procedures,Models
✓ JOINS: Purpose. Inner Joins	✓ Using Functions in MSSQL	✓ Stored Procedures & Usage
✓ Left / Right / Full Outer Joins	✓ Scalar Value Functions	✓ Creating, Testing Procedures
✓ Cross Joins, Query Tuning	✓ Inline & Multiline Functions	✓ Encryption, Deferred Names
✓ Creating & Using Views	✓ Date & Time Functions	✓ SPs for Validations, Analysis
✓ DML, SELECT with Views	✓ String, Aggregate Functions	✓ System SPs, Recompilation
✓ RLS : WITH CHECK OPTION	✓ Data Types : Integer, Char, Bit	✓ Normal Forms & Types
✓ System Views & Metadata	✓ SQL Variant, Timestamp, Date	✓ Data Models, Self-References

Ch 10: Triggers, Temp Tables	Ch 11: DB Architecture, Locks	Ch 12: Cursors & CTEs, Links
✓ Need for Triggers	✓ Planning VLDBs : Files, Sizing	✓ Cursors : Realtime Use
✓ DDL & DML Triggers	✓ Filegroups, Extents & Types	✓ Fetch & Access Cursor Rows
✓ Using Memory Tables	✓ Log Files : VLF, Mini LSN	✓ CTEs for SELECT, DML
✓ Data Replication, Automation	✓ Table Location, Performance	✓ CTEs: Scenarios & Tuning
✓ Local & Global Temp Tables	✓ Schemas, Transfer, Synonyms	✓ Linked Servers, Remote Joins
✓ Testing & Using Temp Tables	✓ Transactions Types, Lock Hint	✓ Linked Servers: MSDTC, RPC
✓ SELECT .. INTO & Bulk Loads	✓ Query Blocking Scenarios	✓ Tuning Remote Queries

Ch 13: Merge, Upsert & Rank	Ch 14: Grouping & Cube	Ch 15: Self Joins, Excel Analysis
✓ Need for Merge in ETL	✓ Group By & HAVING	✓ Self Joins & Self References
✓ Incremental Loads with SQL	✓ Cube, Rollup & Grouping	✓ UNION, UNION ALL
✓ MERGE and RANK Functions	✓ Joins with Group By	✓ Sub Queries with Joins
✓ Window Functions, Partition	✓ 3 Table, 4 Table Joins	✓ IIF, CASE, EXISTS Statements
✓ Identify, Remove Duplicates	✓ Query Execution Order	✓ Excel Analytics, Pivot Reports

Real-time Case Study

Mini Project [Design, Queries, Stored Procedures, Functions, Joins, more..]

Module 2: Query Tuning

Ch 16: Query Audits, Perfmon	Ch 17: Indexes & Tuning	Ch 18: Partitions, Statistics
✓ Query Performance Issues	✓ Indexes : Sort Locations	✓ Partition Implementations
✓ Reasons for Slow Queries	✓ Clustered & Online Indexes	✓ Partition Functions & Schemes
✓ Performance Tuning Options	✓ Non Clustered, Columnstore	✓ Primary & Secondary Types
✓ Performance Tuning Tools	✓ Included Indexes in Realtime	✓ Data Archival with Partitions
✓ Query Store & History	✓ Filtered Indexes & Usage	✓ Compression with Partitions
✓ Activity Monitor, Perfmon	✓ Covering Index & Selectivity	✓ Statistics : Realtime Use
✓ DMVs & DMFs for Audits	✓ Indexed Views (Materialized)	✓ Index, Column Stats, Updates

Ch 19: Tuning Tools, Exec Plans	Ch 20: MOT & Temporal Tables	Ch 21: Locks & Isolation Levels

✓ Tuning Tools and Workloads	✓ Memory Optimized Tables	✓ Transactions & Locks
✓ Profiler Tool : Trace Files	✓ Non Clustered Primary Keys	✓ Lock Types & Performance
✓ Trace Filters and Rollover	✓ Stats Updates, Performance	✓ Lock Management Options
✓ DTA Tool Recommendations	✓ Temporal Tables in Realtime	✓ Isolation Levels & TempDB
✓ PDS, & Index Size, Index Scan	✓ History Tracking & Testing	✓ Snapshots and Performance
✓ Execution Plans, Index Seeks	✓ Timestamp Columns Usage	✓ Deadlocks Simulations, Graphs
✓ Query Cost Issues, Solutions	✓ Tuning Stored Procedures	✓ Profiler Tool & LIVE Locks

Module 3: TSQL Programming & Tuning

Ch 22: Adv. Stored Procedures 1	Ch 23: Adv. Stored Procedures 2	Ch 24: Adv. Stored Procedures 3
✓ Declaring, Using Variables	✓ Table Valued Parameters	✓ Dynamic SQL Programs
✓ Using Triggers with Views	✓ Using TVP with Procedures	✓ sp_executesql Extended SP
✓ Updatable Views, DML	✓ Creating User Defined Types	✓ Formatting Queries, Nvarchar
✓ Views & Stored Procedures	✓ Big Data Copy & Transactions	✓ Cursors Types: Local, Global
✓ Data Distributions in Tables	✓ Using SPs & Table Variables	✓ Cursor Types: Static, Dynamic
✓ Transactions with Procedures	✓ Transactional Integrity	✓ Forward_Only, Scroll Types
✓ Conditional Commits in SPs	✓ Output Parameters in SP	✓ WHILE Loop: @@Fetch Status
✓ Rollback Options in Realtime	✓ IN and OUT Options Usage	✓ Variables with Dynamic SQL
Ch 25: Complex Functions (UDF)	Ch 26: Complex Functions - 2	Ch 27 – 30: Banking Project
✓ Inline, Table Line Functions	✓ Reading JSON Data	✓ Design & Planning Phase
✓ Multi Line Table Functions	✓ Using OPENROWSET()	✓ Querying Phase
✓ Using LOOPs in Functions	✓ Using nvarchar(max) values	✓ Programming Phase
✓ Variables & Return Values	✓ Using PIVOT() Function	✓ Debugging Phase
✓ Table Generation Logic	✓ Data De-duplication in SQL	✓ Testing Phase
✓ Date & Time Data Types	✓ Recursive CTEs, Anchors	✓ Complete Project Solution
✓ Calendar Data Generations	✓ Recursive CTEs, Anchors	✓ Project FAQs, Resume Points

Module 4: Azure SQL Dev

Ch 31: Cloud Basics, Azure Funda	Ch 32: Azure SQL Database	Ch 33: Azure SQL DB Migrations
✓ Cloud Fundamentals	✓ Azure SQL Services	✓ SQL DB Migration Options
✓ Cloud Concepts, Benefits	✓ Azure SQL Server Creation	✓ Data Migration Assistant: DMA
✓ IaaS, PaaS, SaaS Cloud Types	✓ Azure SQL Databases	✓ DMA Tool, Migration Options
✓ Azure Cloud Concepts	✓ Azure Firewall : Rules	✓ On-Premises DB Export
✓ Azure Resources & Usage	✓ Test Connections from SSMS	✓ Azure SQL Database Import
✓ Azure Services & Purpose	✓ SSMS Tool : Test Connections	✓ Azure Storage Account
✓ Azure Account & Subscription	✓ ADS Tool : Installation, use	✓ Linking SSMS with Azure

Ch 34: Azure SQL DB Licensing	Ch 35: Azure SQL DB Metrics	Ch 36: Azure SQL DB Tuning, AI
✓ Azure SQL DB Licensing ✓ Per Database Licensing ✓ DTUs: Basic, Standard Types ✓ VPU and Plan Types ✓ DTU Versus VPU Licensing ✓ Elastic DTUs (eDTU) Usage ✓ Elastic Query Processing	✓ Azure SQL DB Metrics ✓ CPU, Memory, Log Metrics ✓ Data File Metrics, Alerts ✓ Action Groups & Emails ✓ Query Performance Insight ✓ Automated Tuning Options ✓ Query Recommendations	✓ Automated Tuning Options ✓ Manual Tuning Options ✓ Server Level Tuning ✓ Database Level Tuning ✓ AI Search Service, Tuning ✓ AI Indexes and Practical Use ✓ Watermark Columns, Updates
Ch 37: Azure PaaS & Azure IaaS	Ch 38: Azure IaaS Concepts	Ch 39 – 40: Banking Project
✓ Azure PaaS : Operations ✓ Azure Paas : Limitations ✓ Azure IaaS : Advantages ✓ Azure IaaS Components ✓ Azure Virtual Machines ✓ Capacity & Networking ✓ Disk & Memory Config.	✓ Azure Virtual Machines ✓ SQL Server with Azure VM ✓ Access Azure VM from SSMS ✓ Migrations from PaaS ✓ Migrations from On-Premise ✓ Azure Data Studio, VMs ✓ Comparing SSMS & ADS Tool	✓ OLTP Databases in Azure ✓ Code Based Deployments ✓ Code Less Deployments ✓ Debugging Phases in Azure ✓ Testing Phases in Azure ✓ Complete Project Solution ✓ Project FAQs, Resume Points

All sessions are practical, step by step.

SQL School
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CERTIFICATE OF COMPLETION

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