SQL Server TSQL – Developer Course

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.

Who can join this course?
Anyone. There are NO Pre-requisites for this course. We start the classes right from Basics

What about the Lab? What are the System Requirements?
Window OS; 6 GB RAM; Any Processor. We shall guide you for Software Installation, Step by Step Practice with our experienced, well versed Lab Faculty.

SQL Server TSQL Training Plans:

	Training Module	Chapters	Applicable for	Duration
Plan A	1. MSSQL, TSQL Queries	Ch 1 to Ch 24	Data Analysts, Data Engineers, BI Developers	3 Weeks
Plan B	1. MSSQL, TSQL Queries 2. TSQL Programming 3. Query Tuning	Ch 1 to Ch 46	Data Analysts, Data Engineers, Developers	4.5 Weeks
Plan C	1. MSSQL, TSQL Queries 2. TSQL Programming 3. Query Tuning 4. Azure SQL Dev With AI	Ch 1 to Ch 54	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: Database Intro & Job Roles
- ✓ Database Introduction
- ✓ Database Types: OLTP, DWH
- ✓ DBMS & Realtime Use
- ✓ DBMS Software & Purpose
- ✓ SQL: Purpose & Use
- ✓ SQL Server Versions, Editions
- ✓ Microsoft SQL Job Roles

Ch 2: SQL Server Installations
- ✓ SQL Server 2022 Installations
- ✓ SQL Server 2019 Installations
- ✓ SSMS Tool Installation
- ✓ Server Connections, Properties
- ✓ Instance & Instance Types
- ✓ Authentication Types
- ✓ System Databases & Purpose

Ch 3: SQL Basics V1 (Commands)
- ✓ Database, Tables & Columns
- ✓ SQL Basics: Purpose
- ✓ DDL Statements
- ✓ DML Statements
- ✓ DQL Statements
- ✓ Verifications @ GUI
- ✓ Basic SELECT Queries

Ch 4: SQL Basics V2 (Operators)
- ✓ DDL Variants in MSSQL
- ✓ DML Variants in MSSQL
- ✓ INSERT & INSERT INTO
- ✓ SELECT & SELECT INTO
- ✓ Basic Operators in SQL
- ✓ Special Operators in MSSQL
- ✓ ALTER, TRUNCATE, DROP

Ch 5: Excel Data Imports
- ✓ Data Imports with Excel
- ✓ SQL Native Client
- ✓ Order By: Asc, Desc
- ✓ Order By with WHERE
- ✓ TOP & OFFSET
- ✓ UNION ALL
- ✓ UNION, Data Appends

Ch 6: Schemas & Security
- ✓ Schemas: Creation, Usage
- ✓ Schemas & Table Grouping
- ✓ Using Default Schema
- ✓ Real-world Banking Database
- ✓ Table Migrations @ Schemas
- ✓ 2 Part, 3 Part & 4 Part Naming
- ✓ Verifying Schemas in UI

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Ch 7: Constraints & Keys Basics
- ✓ Need for Constraints, Keys
- ✓ Null, Not Null Constraints
- ✓ Unique Key Constraint
- ✓ Primary Key Constraint
- ✓ Foreign Key & References
- ✓ Default Constraint & Usage
- ✓ DB Diagrams & ER Models

Ch 8: Indexes Basics, Tuning
- ✓ Indexes & Tuning
- ✓ Clustered Index, Primary Key
- ✓ Non Clustered Index & Unique
- ✓ Creating Indexes Manually
- ✓ Verifying Indexes
- ✓ Composite Keys, Query Optimizer
- ✓ Composite Indexes & Usage

Ch 9: Joins & Audits
- ✓ Joins: Table Comaparisons
- ✓ Inner Joins & Matching Data
- ✓ Outer Joins: LEFT, RIGHT
- ✓ Full Outer Joins & Audits
- ✓ Cross Join & Table Combination
- ✓ Joining more than 2 tables
- ✓ Joining Tables with Aliases

Ch 10: Views & RLS
- ✓ Views: Realtime Usage
- ✓ Storing SELECT in Views
- ✓ DML, SELECT with Views
- ✓ RLS: Row Level Security
- ✓ WITH CHECK OPTION
- ✓ Database Audits & Metadata
- ✓ Important System Views

Ch 11: Stored Procedures
- ✓ Stored Procedures: Realtime Use
- ✓ Parameters Concept with SPs
- ✓ Procedures with SELECT
- ✓ System Stored Procedures
- ✓ Metadata Access with SPs
- ✓ SP Recompilations
- ✓ Stored Procedures, Tuning

Ch 12: User Defined Functions
- ✓ Using Functions in MSSQL
- ✓ Scalar Value Functions
- ✓ Inline & Multiline Functions
- ✓ Parameterized Queries
- ✓ Date & Time Functions
- ✓ String Functions & Queries
- ✓ Aggregated Functions & Usage

Ch 13: Triggers & Automations
- ✓ Need for Triggers
- ✓ DDL & DML Triggers
- ✓ For / After Triggers
- ✓ Instead Of Triggers
- ✓ Memory Tables with Triggers
- ✓ Data Replication, Automation
- ✓ Disabling DMLs & Triggers

Ch 14: Transactions & ACID
- ✓ Transaction Concepts in OLTP
- ✓ Transaction Types in Realtime
- ✓ Auto Commit, Explicit Transaction
- ✓ COMMIT, ROLLBACK
- ✓ Checkpoint & Logging
- ✓ Lock Hints & Query Blocking
- ✓ READPAST, LOCKHINT

Ch 15: Cursors & Fetch
- ✓ Cursors: Realtime Usage
- ✓ Cursor Declaration Types
- ✓ Open Cursor, Close Cursor
- ✓ Local & Global Cursors
- ✓ Scroll & Forward Only Cursors
- ✓ Static & Dynamic Cursors
- ✓ Fetch, Absolute Cursors

Ch 16: CTEs & Tuning
- ✓ Common Table Expression
- ✓ Creating and Using CTEs
- ✓ CTEs, In-Memory Processing
- ✓ Using CTEs for DML Operations
- ✓ Using CTEs for Data Retrieval
- ✓ Using CTEs for Tuning
- ✓ CTEs: Duplicate Row Deletion

Ch 17: Relations, Normal Forms
- ✓ Adding PK to Tables
- ✓ Adding FK to Tables
- ✓ Cascading Keys
- ✓ Self Referencing Keys
- ✓ Database Diagrams
- ✓ Normal Forms: 1 NF, 2 NF
- ✓ 3 NF, BCNF and 4 NF

Ch 18: Self Joins, EXISTS
- ✓ Joining same table
- ✓ Correlated Queries
- ✓ Joining Tables, Queries
- ✓ Self Joins with WHERE
- ✓ Self Joins with UNION
- ✓ Self Joins with Order By
- ✓ Self Joins with Views

Ch 19: Remote Joins
- ✓ Working with Multiple Servers
- ✓ Multi Server Access from SSMS
- ✓ Linked Servers Creation, Tests
- ✓ 4 Part Naming Convention
- ✓ Remote Data Access
- ✓ RPC & RPC OUT
- Remote Joins & Data Analysis

Ch 20: Sub Queries
- ✓ Sub Queries Concept
- ✓ Sub Queries & Aggregations
- ✓ Joins with Sub Queries
- ✓ Sub Queries with Aliases
- ✓ Sub Queries with OrderBy
- ✓ Sub Queries with WHERE
- ✓ Sub Queries, Joins, Where

Ch 21: Group By Queries
- ✓ Group By, Distinct Keywords
- ✓ GROUP BY, HAVING
- ✓ Cube( ) and Rollup( )
- ✓ Sub Totals & Grand Totals
- ✓ Grouping( ) & Usage
- ✓ Group By with UNION
- ✓ Group By with UNION ALL

Ch 22: Joins with Group By	Ch 23: Data Types & Conversions	Ch 24: Window Functions, CASE
✓ Joins with Group By	✓ Integer Data Types	✓ IIF Function and Usage
✓ 3 Table, 4 Table Joins	✓ Character, MAX Data Types	✓ IIF with Tables, Joins
✓ Join Queries with Aliases	✓ Decimal & Money Data Types	✓ CASE Statement Usage
✓ Join Queries & WHERE	✓ Boolean & Binary Data Types	✓ Window Functions (Rank)
✓ Join Queries & Group By	✓ Date and Time Data Types	✓ Row_Number( )
✓ Joins with Sub Queries	✓ Table, SQL_Variant Types	✓ Rank( ), DenseRank( )
✓ Query Execution Order	✓ Cast( ) and Convert( ) Functions	✓ Partition By & Order By

Mini Project (Can be used in Resume)

Module 2: TSQL Programming

Ch 25: Variables & Try..Catch	Ch 26: Updatable Views	Ch 27: Stored Procedures & TVPs
✓ Variables: Declaration & Usage	✓ Using Triggers with Views	✓ Using TVP with Procedures
✓ Assigning Values to Variables	✓ Updatable Views, DML	✓ Creating User Defined Types
✓ SELECT & SET Operations	✓ Views & Stored Procedures	✓ Big Data Copy & Transactions
✓ Using Variables in SPs	✓ Data Distributions in Tables	✓ Using SPs & Table Variables
✓ Variables Versus Parameters	✓ Transactions with Procedures	✓ Transactional Integrity with SPs
✓ Try.. Catch Block with Variables	✓ Conditional Commits in SPs	✓ Conditional Commits, Rollbacks
✓ THROW Statement, Error Handling	✓ Rollback Options in Realtime	✓ Procedure Recompilations

Ch 28: Stored Procedures, Cursors	Ch 29: SPs & Recursive CTEs	Ch 30: Functions & Loops
✓ Cursors Types: Local, Global	✓ CTEs: Common Table Expression	✓ Inline, Table Line Functions
✓ Using Procedues with Cursors	✓ CTEs For DML Operations	✓ Multi Line Table Functions
✓ Formatting Queries, Nvarchar	✓ Defining Recursive CTEs	✓ Using LOOPs in Functions
✓ WHILE Loop: @Fetch Status	✓ Anchor Element: Realtime Use	✓ Variables & Return Values
✓ Variables with Dynamic SQL	✓ Termination Checks and Loops	✓ Table Generation Logic
✓ sp_executesql Extended SP	✓ Defining SPs with CTEs	✓ Date & Time Data Types
✓ Dynamic SQL Programming	✓ Cautions with Recursive CTEs	✓ Calendar Data Generations

Ch 31: OpenRowSet, Debugging	Ch 32: PIVOT, UNPIVOT	Ch 33: Temporary Tables
✓ Reading JSON Data	✓ Reading Denormalized Data	✓ TempDB: Realtime Use
✓ Using OPENROWSET( )	✓ Normalizing Table Data	✓ Local Temporary Tables
✓ OpenRowSet with Variables	✓ PIVOT Operation with TSQL	✓ Global Temporary Tables
✓ Debugging Stored Procedures	✓ PIVOT with Aggregates	✓ Testing & Using Temp Tables
✓ Debugging Types in TSQL	✓ FOR and IN Operators	✓ Temp Tables across Sessions
✓ Debugging Techniques with SSMS	✓ UNPIVOT with TSQL	✓ Auto CreateTables using Select
✓ Debug Options with Variables	✓ PIVOT with Functions, SPs	✓ SELECT .. INTO & Bulk Loads

Ch 34: Synonyms & Realtime Use	Ch 35: Server Architecture	Ch 36: DB Architecture (VLDB)
✓ Synonyms: Creation, Use	✓ Database Engine Components	✓ Planning Large Databases
✓ Creating Synonyms For Tables	✓ Parser, Compiler & Optimizer	✓ Primary, Secondary Data Files
✓ Synonyms for Schemas, Tables	✓ Protocols and Query Processing	✓ Filegroups, Spacing and Sizing
✓ Synonyms: DB, Schemas, Tables	✓ MDAC and CLR Components	✓ Log File: Usage and Precautions
✓ Remote DB Access with Synonyms	✓ Parsing and Compilation	✓ Creating Tables with Filegroups
✓ Listing & Varying Synonyms	✓ Memory Manager & IO Managers	✓ Pages and Extents for Storage
✓ Synonyms Versus Aliases	✓ SQL OS Components, MDAC	✓ VLF, MiniLSN & Checkpoint

Realtime Project 2 (For Resume)

Module 3: Query Tuning

Ch 37: Tuning: Audits, AM Tool	Ch 38: Tuning : Indexes	Ch 39: Tuning: Partitions
✓ Activity Monitor Tool	✓ Indexes : Sort Locations	✓ Partitions: Performance Tuning
✓ Perfmon Tool & Counters	✓ Clustered & Online Indexes	✓ Partition Functions & Schemes
✓ Query Audits: DMVs, DMFs	✓ Non Clustered, Column Store	✓ Partition Un-partitioned Tables
✓ Plan Handle, Execution Time	✓ Included Indexes in Realtime	✓ Compressions: ROW, PAGE
✓ Long Running Queries	✓ Filtered Indexes & Usage	✓ Auditing Partitions
✓ Query Store & Buffer Cache	✓ Covering Index & Selectivity	✓ Partitions Limitations in OLTP
✓ Data Flush, Stats Collection	✓ Indexed Views (Materialized)	✓ Partitions with DWH

Ch 40: Statistics & Tuning	Ch 41: Index Management	Ch 42: Tuning Tools
✓ Statistics: Realtime Usage	✓ Index Management Options	✓ Tuning Tools: Workload Files
✓ Index & Column Statistics	✓ Index Rebuilds, Re-Organize	✓ Profiler Tuning, Events
✓ Statistics & Key Purpose	✓ Database Maintenance Plans	✓ DTA, Profiler Options
✓ Verifying, Using Stats	✓ Page Count and Index Conditions	✓ Physical Design Structures
✓ Statistics Versus Indexes	✓ Degree Of Parallelism Settings	✓ PDS Recommendations
✓ Stats Updates on Tables	✓ Resumable & Online Indexes	✓ Query Execution Cache
✓ Stats Updates on Views	✓ PAUSE, RESUME in Rebuilds	✓ Tuning Tools: Precautions

Ch 43: Execution Plans	Ch 44: Lock Management 1	Ch 45: Lock Management 2
✓ Execution Plan Analysis	✓ Open Transactions in Realtime	✓ Deadlocks in Real-world
✓ IO Cost and CPU Cost	✓ Open Transaction, Blocking	✓ Profiler Tool & Deadlocks
✓ SubTree & Operator Cost	✓ LOCKS: Types & Audits	✓ Lock Management: Deadlocks
✓ NUMA Nodes, Processor Affinity	✓ S, X, IX, U and MD Locks	✓ Deadlock Graphs & Events
✓ Thread Count, DOP	✓ Sch-M and Sch-S Locks	✓ Avoidance, Prevention
✓ Table & Index Scan, Index Seek	✓ SP_WHO2, SP_LOCK	✓ Deadlock Prevention
✓ Index Selectivity & Tuning	✓ sysprocesses & Lock Waits	✓ sysprocesses & sp_who2

Ch 46: Isolation Levels
- ✓ Lock Hints and Isolation Levels
- ✓ Read Committed, Uncommitted
- ✓ Serializable, Repeatable Read
- ✓ Snapshot Isolation, Versioning
- ✓ Read Committed Snapshot
- ✓ sysprocesses & sp_who2
- ✓ Choosing Correct Isolation Level

Realtime Case Study

Module 4: Azure SQL Dev

Ch 47: Cloud Fundamentals
- ✓ Cloud Fundamentals
- ✓ Public Cloud & Private Cloud
- ✓ Cloud Implementations: SaaS
- ✓ Paas & IaaS Implementations
- ✓ Cloud Storage: Practical Benefits
- ✓ Database Hosting in Cloud
- ✓ Azure Cloud: Advantages

Ch 48: Azure SQL Deployments
- ✓ Azure SQL Server Creation
- ✓ Azure Server (Logical Server)
- ✓ Networking Settings
- ✓ Azure Firewall Creations
- ✓ Azure Services: Enabling
- ✓ Testing SSMS Connections
- ✓ Password Resets in Azure

Ch 49: Azure SQL DB Migrations
- ✓ SQL DB Migration Options
- ✓ Data Migration Assistant: DMA
- ✓ DMA Tool, Migration Options
- ✓ On-Premises DB Export
- ✓ Azure SQL Database Import
- ✓ Azure Storage Account
- ✓ Linking SSMS with Azure

Ch 50: Azure SQL DB Licensing
- ✓ 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

Ch 51: Azure SQL DB Metrics
- ✓ Azure SQL DB Metrics
- ✓ CPU, Memory, Log Metrics
- ✓ Data File Metrics, Alerts
- ✓ Action Groups & Emails
- ✓ Query Performance Insight
- ✓ Automated Tuning Options
- ✓ Query Recommendations

Ch 52: Azure SQL DB Tuning, AI
- ✓ Automated Tuning Options
- ✓ Manual Tuning Options
- ✓ Server Level Tuning
- ✓ Database Level Tuning
- ✓ Create Index Option
- ✓ Drop Index, Seek Options
- ✓ Built-In Intelligence

Ch 53: Azure AI Search
- ✓ AI Search Service, Tuning
- ✓ AI Indexes, Practical Use
- ✓ Watermark Columns
- ✓ Triggers & Timestamp
- ✓ Filterable, Searchable
- ✓ Sortable, Facetable
- ✓ Indexer & Data Refresh

Ch 54: Azure Backups, Restores
- ✓ Azure Backups & Restores
- ✓ Automated Backups
- ✓ Backup Retention Options
- ✓ LTR, PITR & Differential
- ✓ Backup Audits from Portal
- ✓ Restores from SQL Server
- ✓ Restores from Azure Portal

Realtime Project 3

All sessions are practical, step by step.

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MS SQL	DBA
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Trending Job Roles
- Data Analyst
- Data Engineer
- Data Architect
- Data Scientist
- Developer, more .. !

Training Highlights
- Step by Step
- LIVE Project(s)
- Job Assistance
- Resume Guidance
- Concept wise FAQs

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----------------------------------- Thank you, All the best! ----------------------------

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