

SQL

SQL

SQL (Total 4 weeks/24hrs)

SQL Server Introduction
Sub Languages
Constraints
Clauses
Sub-Queries
Joins
Views
Index's
Triggers
Functions
Stored Procedures
CTE

Week 1:
Chapter 1: About Database & Data Warehouse

- What is Database?
- What is Data Warehouse?
- Difference between Database & Data Warehouse

Chapter 2: SQL Server Database Design

- Database Creation using GUI
- Database Creation using T-SQL Scripts
- DB Design using Files
- File locations and Size Parameters
- DB Log Files, Growth and Placement
- DB Structure Modifications & Ownership

Chapter 3: SQL Server Tables and T-SQL Queries

- Table creation using T-SQL Scripts
- DML Operations: INSERT, UPDATE, DELETE
- Single Row and Multi-Row Insert Statements
- Table Aliases, Column Aliases & Usage
- Table creation with Schemas
- DELETE versus TRUNCATE Statements
- SELECT Queries and Sub Queries
- Schemas and Nested Queries with Aliases

Week 2:

Chapter 4: Constraints, Keys and Data Validation

- Data Integrity and Normal Forms
- Tables with Keys & Constraints
- NULL and IDENTITY Properties – Usage
- UNIQUE KEY Constraint and NOT NULL
- PRIMARY KEY Constraint & Importance
- FOREIGN KEY and REFERENCE Attributes
- CHECK and DEFAULT Constraints, Usage

Week 3:

Chapter 5: Joins, Sub Queries and Nested Queries

- SELECT Statements - IIF, SWITCH, CHOOSE
- ORDER BY, GROUP BY, GROUPING, HAVING
- Sub Queries, Nested Queries and EXISTS
- DELETE from SELECT, UPDATE from SELECT
- INSERT INTO ... SELECT & Data Copy
- Inner Joins - Purpose and Performance
- Outer Joins - Types, Advantages and Usage
- Cross Joins - Advantages and Limitations
- Self Joins and Sub Queries

Week 4:

Chapter 6: Joins, Views and Nested Queries

- Benefits of Views - End User Access
- Defining Views on Tables and Views
- SCHEMABINDING and Encryption Options
- ALTER TABLE Issues and Solutions with Views
- System Views & Management Views: Audits
- Joins and Nested Sub Queries in Views

Chapter 7: User Defined Functions and Joins

- Functions - Syntax, Usage, and Importance
- Scalar-Valued Functions and Examples
- Table Valued Functions and Examples
- System Functions and Joins - CROSS APPLY
- Date, Time and Conversion Functions
- String Functions and Meta-data Functions
- ROWCOUNT, GROUPING, ROLLUP Functions
- Joining Functions and Tables / Views

Week 4

Chapter 8: Indexes and Query Tuning

- Need for Indexes, Index Types & Usage
- Indexing Table & View Columns
- Index SCAN AND SEEK
- PRIMARY KEYS and Non-Clustered Indexes

Chapter 9: Stored Procedures and Benefits

- Need for Stored Procedures & Syntax
- Use of Variables and Query Parameters
- Stored Procedures with Loops & IF... ELSE
- SCHEMABINDING and ENCRYPTION Options
- INPUT, OUTPUT & RESULTSET Parameters
- System Stored Procedures and Nesting
- Dynamic SQL Queries and Parameters
- Stored Procedures, Data Validation Options
- OUTPUT Parameters and Result set Options

Chapter 10: Triggers and Memory Limitations

- Triggers - Architecture, Types & Usage
- DML Triggers and Performance Impact
- INSERTED and DELETED Memory Tables
- Triggers for Audit Operations (Memory)

Week 5:

Chapter 11: Cursors, Stored Procedures, CTE

- Cursors Introduction
- LOCAL and GLOBAL Cursors - Scope
- KEYSET Cursors and Temp Objects
- Embedding Cursors in SPs and Functions
- Temp Tables and Procedures with Cursors

Chapter 12: Transactions & Procedures

- Transaction Options and Stored Procedures
- ACID Properties in T-SQL and Scope
- EXPLICIT Transaction Types and Issues
- IMPLICIT Transactions Types and Issues
- AUTOCOMMIT Transaction and Advantages
- Nested Points and Save Points usage
- Query Blocking Issues and Query Hints
- SPs with Transactions & Temp Objects