

### SQL Server Database Querying Course

Duration: 3 Days

## OBJECTIVES

This course is aimed at those who need to extract information from a relational database system. Although it provides an overview of relational database design principals it does not cover the teaching of formal database design processes and database/table creation. The course assumes no previous knowledge of SQL and SELECT statements, and takes delegates from simple queries, through to complex queries involving multiple tables, introducing the vast collection of built-in functions along the way. Covers SQL Server 2005, SQL Server 2008, SQL Server 2012 and SQL Server 2014

## PRE-REQUISITES

Delegates would benefit from a basic understanding of what a relational database is a familiarity with the terms tables, columns, and relationships, these concepts will be overviewed at the start of the course.

## COURSE OUTLINE

### Relational Database Overview

- Basic Relational Database Terminology
- Relational Database
- Tables and Columns
- Rows and Records
- Connecting Tables
- Primary Keys
- Foreign Keys
- Relationship Types

### The SELECT statement

- SELECT list
- Columns
- ALL or DISTINCT
- String Expressions
- Arithmetic Expressions
- Column Aliases

### Comparison Conditions

- Relational Operators
- BETWEEN AND
- IS NULL Example
- IN Example
- LIKE Examples
- Working With Dates
- NOT

### Multiple Conditions

- Mixing AND with OR

## The Top Option

- WITH TIES
- TOP n PERCENT

## UNION

- UNION ALL
- INTERSECT
- EXCEPT

## Functions

- Functions in SELECT Lists
- Functions in WHERE Clauses
- Functions in ORDER BY Clauses

## Aggregate Functions

- COUNT
- SUM
- MAX
- MIN
- AVG
- NULL Values and Aggregates
- Aggregate Expressions

## Mathematical Functions

- SQUARE
- POWER
- SQRT
- RADIANS, SIN, COS, TAN
- ABS
- ROUND
- CEILING & FLOOR

## Conversion Functions

- CAST and CONVERT
- Converting Dates To Strings
- Converting Money Values To Strings
- ISNULL Function

## String Functions

- UPPER & LOWER
- STR
- LEFT & RIGHT
- CHARINDEX
- SUBSTRING
- REVERSE, REPLACE and SPACE
- RTRIM & LTRIM
- REPLICATE
- Using REPLICATE To Pad Strings
- ASCII & CHAR

## Date Functions

- GETDATE
- YEAR, MONTH & DAY
- DATEPART & DATENAME

- Date Arithmetic
- DATEADD & DATEDIFF

#### Substitution Functions

- COALESCE
- NULLIF

#### Cross Joins

#### Inner Joins

- Legacy Style Joins
- ANSI Style Joins
- Simple Joins
- Two Tables
- Three Tables
- Four Tables
- INNER JOIN Theory

#### Outer Joins

- LEFT JOIN
- RIGHT JOIN
- FULL OUTER Join

#### Table Aliases

#### Self Join

#### Advanced Joins

- Multiple INNER JOINS
- Multiple OUTER Joins

#### Working with Aggregate Data

- The GROUP BY Clause
- Identifying The Group
- Including Columns In The SELECT List
- The HAVING Clause
- When is a HAVING a WHERE?

#### Sub Queries

- Simple Sub Queries
- Using Aggregate Functions in Sub queries
- Sub Queries Returning Multiple Records
- Correlated Sub-Queries
- Derived Table Sub-Queries