From Zero to SQL Server

If you are a programmer or a budding database administrator, you need to know SQL Server. SQL Server is one of the most popular database systems in use today. This course teaches what you need to know in order to efficiently create a database design to support online transaction processing (OLTP) applications. You learn the T-SQL language to create database tables and other objects and to retrieve and modify data.

Learning Objectives

Why use SQL Server

Create databases and tables

Create data retrieval and modification SQL

Write stored procedures, triggers and views

Prerequisites

We assume you are familiar with the basics of relational database design. You must have access to a SQL Server and the SQL Server Management Studio.

Course Length

4 days

Module 1: SQL Server Overview

What is SQL Server and why use it

Transact-SQL overview

SQL Server features: Stored procedures, triggers, etc.

Using SQL Server Management Studio

Module 2: Create Databases

Databases and transaction logs
Files and file groups
Creating a database
Database properties
Using T-SQL to create and drop a database

Module 3: Tables

Field data types
IDENTITY
Creating tables
Creating default values
User-defined data types
Creating tables using T-SQL

Module 4: Indexes/Constraints

Creating constraints and indexes
Declarative referential integrity
Primary and foreign key constraints
UNIQUE constraints
CHECK constraints

Module 5: Basic Queries

Data retrieval using SELECT
Concatenation of columns
Literal strings
Using the WHERE clause

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Using LIKE, AND, OR, IN, NOT, DISTINCT and BETWEEN

Calculated columns

Sorting data

Execution plans

Module 6: More SQL Queries

Using the GROUP BY clause

Using the HAVING clause

The aggregate functions such as sum, average, min, max and count

TOP n

The CASE statement

The CUBE statement

Eliminating nulls with Grouping()

Module 6: Joins and Unions

INNER JOIN

LEFT OUTER JOIN

RIGHT OUTER JOIN

CROSS JOIN

Self joins

Subqueries

Unions

Module 7: Data Modification

INSERT

SELECT INTO

UPDATE

DELETE

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Temporary tables

Module 8: System Functions

Date functions
Mathematical functions
String functions
System functions
Meta-data functions
Security functions
Conversion functions
User-defined functions
System variables
System operators

Module 9: Stored Procedures

Benefits of stored procedures
Passing parameters
Flow of control
Returning information from stored procedures
RAISEERROR
OUTPUT parameters
Cursors

Module 10: Triggers

The types of triggers
Inserted and delete tables
Columns_Updated() function
INSTEAD OF triggers

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Module 11: Views

Views

Restrictions

Updatable views

Module 12: Useful Queries

Samples of lots of useful queries

System maintenance

Who's on

Information on tables

Create C# classes from table data

Module 13: Database standards

Naming standards for SQL Server

Module 14: Developing database applications

Best practices for developing database applications

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