

MOC 50350 Developing Spatial Data Solutions with Microsoft SQL Server 2008

Course Summary

Description

This course provides students with the knowledge and skills to create database solutions that use spatial data in Microsoft SQL Server 2008. The course introduces developers to spatial data concepts and the geography and geometry spatial data types in SQL Server 2008. It then describes how to use these data types to store geographic and location-based data and to perform spatial operations and queries. Finally, the course describes how to integrate spatial data in SQL Server 2008 with the Microsoft Virtual Earth map control in a Web application.

Objectives

At the end of this course, students will be able to:

- Store spatial data in a SQL Server 2008 database by using the geography and geometry data types.
- Perform spatial data operations and queries in Transact-SQL code.
- Create spatial indexes to optimize queries against spatial data types.
- Display spatial data from a SQL Server database on a Microsoft Virtual Earth map control in a Web page.

Topics

- Introduction to Spatial Data
- Spatial Data Operations
- Spatial Data Indexes
- Spatial Data and Bing Maps

Audience

This course is intended for developers who need to create applications that store and query geographic data.

Prerequisites

Before attending this course, students must have:

- Experience of creating database solutions in SQL Server, including basic Transact-SQL programming.
- Familiarity with Web development in Microsoft Visual Studio (recommended but not essential).

Duration

One day

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Course Outline

I. Introduction to Spatial Data

This module introduces some basic spatial data concepts, and discusses the kinds of software applications that can be developed with spatial data. It then describes the spatial data types in SQL Server 2008, and explains how to use them to store spatial data in a column or Transact-SQL variable.

- A. Spatial Data Overview
- B. SQL Server Spatial Data Types
- C. Storing and Querying Spatial Objects

Lab: Using Spatial Data Types

- Working with Points
- Working with Lines
- Working with Polygons

After completing this module, students will be able to:

- Describe the difference between geodetic and planar data.
- Choose when to use the **geography** and **geometry** data types.
- Store and query spatial points, lines, and polygons in a SQL Server database.

II. Spatial Data Operations

This module explains how to write Transact-SQL statements that use the methods of the geography and geometry data types to perform spatial operations that measure, modify, and find relationships between spatial data instances.

- A. Overview of Spatial Data Operations
- B. Querying Properties of Spatial Instances
- C. Manipulating Spatial Data Instances
- D. Finding Relationships Between Spatial Instances

Lab: Performing Operations on Spatial Data

- Querying Spatial Data Properties
- Manipulating Spatial Data Instances
- Finding Relationships between Spatial Data Instances

After completing this module, students will be able to:

- Describe the operations that can be performed on geography and geometry instances.
- Query spatial data instance properties.
- Manipulate spatial data instances.
- Find relationships between spatial data instances.

III. Spatial Data Indexes

This module describes spatial data indexing supporting SQL Server 2008, and explains how to create spatial indexes for geometry and geography columns.

- A. Overview of Spatial Indexing
- B. Working with Spatial Indexes

Lab: Working with Spatial Indexes

- Creating a Default Spatial Index
- Using Custom Tessellation Parameters

After completing this module, students will be able to:

- Describe how spatial indexing works in SQL Server 2008.
- Create, modify, and drop spatial indexes.

IV. Spatial Data and Bing Maps

This module describes how to combine spatial data in a SQL Server database with the Microsoft Bing (formerly Virtual Earth) map control to visualize spatial data on a Web page.

- A. Introduction to Microsoft Bing Maps
- B. Visualizing Spatial Data on a Web Page

Lab: Integrating Spatial Data with Bing Maps

- Creating a GeoRSS Feed Handler
- Programming the Map Control

After completing this module, students will be able to:

- Use the Bing map control.
- Display spatial data from a SQL Server database on the Bing map control.