

Microsoft 2781

Designing Microsoft SQL Server 2005 Server-Side Solutions

Class Length: 3 Days

Introduction

Elements of this syllabus are subject to change.

This three-day instructor-led course provides students with the knowledge and skills to design server-side solutions for Microsoft SQL Server 2005T. The course focuses on teaching database developers who work in enterprise environments to identify and place database technologies during design to achieve a suitable solution that meets the needs of an organization. Students will also learn to consider the solution from a system-wide view instead of from a single database or server perspective.

Audience

This course is intended for current professional database developers who have three or more years of on-the-job experience developing SQL Server database solutions in an enterprise environment.

At Course Completion

After attending this course, students will be able to:

- Select SQL Server services to support an organization's business needs.
- Design a security strategy for a SQL Server 2005 solution.
- Design a data modeling strategy.
- Design a transaction strategy for a SQL Server solution.
- Design a Notification Services solution.
- Design a Service Broker solution.
- Plan for source control, unit testing, and deployment to meet an organization's needs.
- Evaluate advanced query techniques.
- Evaluate advanced XML techniques.

Prerequisites

Before attending this course, students must:

- Have experience reading user requirements and business-need documents. For example, development project vision/mission statements or business analysis reports.
- Understand Transact-SQL syntax and programming logic.
- Understand XML. Specifically, they must be familiar with the syntax of XML, what elements and attributes are, and how to distinguish them.
- Understand security requirements. Specifically, must understand how unauthorized users can gain access to sensitive information and be able to plan strategies to prevent access.
- Be able to design a database to 3NF and know the trade offs when backing out of the fully normalized design (denormalization) and designing for performance and business

requirements in addition to being familiar with design models, such as Star and Snowflake schemas.

- Have basic monitoring and troubleshooting skills.
- Have basic knowledge of the operating system and platform. That is, how the operating system integrates with the database, what the platform or operating system can do, and how interaction between the operating system and the database works.
- Have basic knowledge of application architecture. That is, how applications can be designed in three layers, what applications can do, how interaction between the application and the database works, and how the interaction between the database and the platform or operating system works.
- Have some experience with a reporting tool.
- Be familiar with SQL Server 2005 features, tools, and technologies.
- Have a Microsoft Certified Technology Specialist: Microsoft SQL Server 2005 credential - or equivalent experience.

In addition, it is recommended, but not required, that students have completed:

- Course 2778, Writing Queries Using Microsoft SQL Server 2005 Transact-SQL.
- Course 2779, Implementing a Microsoft SQL Server 2005 Database.
- Course 2780, Maintaining a Microsoft SQL Server 2005 Database.

Course Outline

Module 1: Selecting SQL Server Services to Support Business Needs

This module explains how to translate business requirements into SQL Server services and present this solution to non-technical business users.

Lessons

- Evaluating When to Use the New SQL Server Services
- Evaluating the Use of Database Engine Enhancements

Lab 1: Selecting SQL Server Services to Support Business Needs

- Translating Business Requirements into SQL Server Services
- Presenting a Proposed Solution to Non-Technical Business Decision Makers
- Analyzing the Needs of Real Organizations

After completing this module, students will be able to:

- Evaluate the use of the new SQL Server services.
- Evaluate the use of database engine enhancements.

Module 2: Designing a Security Strategy for Components of a SQL Server 2005 Solution

This module explains the considerations for designing a security strategy for the various components of a SQL Server 2005 solution. The module also teaches how to defend the security strategy.

Lessons

- Designing a Security Strategy for Components of a SQL Server 2005 Solution
- Designing Objects to Manage Application Access
- Creating an Auditing Strategy
- Managing Multiple Development Teams Using the SQL Server 2005 Security Features

Lab 2: Designing a Security Strategy

- Evaluating the Security Trade-Offs of SQL Server Services
- Designing a Database to Enable Auditing
- Designing Objects to Manage Application Access
- Defending Security Decisions

After completing this module, students will be able to:

- Design a security strategy for components of a SQL Server 2005 solution.
- Design objects to manage application access.
- Create an auditing strategy.
- Manage multiple development teams by using the SQL Server 2005 security features.

Module 3: Designing a Data Modeling Strategy

This module describes the various considerations and guidelines to define standards for storing XML data in a solution.

Lessons

- Defining Standards for Storing XML Data in a Solution
- Designing a Database Solution Schema
- Designing a Scale-Out Strategy

Lab 3: Designing a Data Modeling Strategy

- Designing a Database Solution Schema
- Designing Integration of Multiple Data Stores

After completing this module, students will be able to:

- Define standards for storing XML data in a solution.
- Design a database solution schema.
- Design a scale-out strategy for a solution.

Module 4: Designing a Transaction Strategy for a SQL Server 2005 Solution

This module describes the considerations and guidelines for defining a transaction strategy for a SQL Server 2005 solution.

Lessons

- Defining Data Behavior Requirements
- Defining Isolation Levels
- Designing a Resilient Transaction Strategy

Lab 4: Designing a Transaction Strategy for a SQL Server 2005 Solution

- Determining the Database Isolation Level
- Determining the Order of Object Access
- Designing Transactions
- Defending a Transaction Strategy

After completing this module, students will be able to:

- Define data behavior requirements.
- Define isolation levels for the data store.
- Design a resilient transaction strategy.

Module 5: Designing a Notification Services Solution

This module explains the guidelines and processes for designing a Notification Services solution into an overall SQL Server 2005 solution.

Lessons

- Defining Event Data
- Designing a Subscription Strategy
- Designing a Notification Strategy
- Designing a Notification Delivery Strategy

Lab 5: Designing a Notification Services Solution

- Defining Event Data
- Designing a Subscription Strategy
- Designing a Notification Strategy
- Executing a Notification Services Solution

After completing this module, students will be able to:

- Define event data and how this data will be stored.
- Design a subscription strategy for a Notification Services solution.
- Design a notification strategy.
- Design a notification delivery strategy.

Module 6: Designing a Service Broker Solution

This module describes the guidelines and processes you need to know to design a Service Broker solution into an overall SQL Server 2005 solution.

Lessons

- Designing a Service Broker Solution Architecture

- Designing Service Broker Data Flow
- Designing Service Broker Solution Availability

Lab 6: Designing a Service Broker Solution

- Designing a Service Broker Solution Architecture
- Designing a Subscription Strategy
- Executing a Service Broker Solution

After completing this module, students will be able to:

- Design a Service Broker solution architecture.
- Design the Service Broker data flow.
- Design the Service Broker solution availability.

Module 7: Planning for Source Control, Unit Testing, and Deployment

This module explains the guidelines and considerations to plan for source control, unit testing, and deployment during design of a SQL Server 2005 solution.

Lessons

- Designing a Source Control Strategy
- Designing a Unit Test Plan
- Creating a Performance Baseline and Benchmarking Strategy
- Designing a Deployment Strategy

Lab 7: Planning for Source Control, Unit Testing, and Deployment

- Designing a Source Control Strategy
- Designing a Unit Testing Plan
- Designing a Deployment Strategy
- Defending Source Control, Unit Test, and Deployment Strategies

After completing this module, students will be able to:

- Design a source control strategy.
- Design a unit test plan.
- Create a performance baseline and benchmarking strategy.
- Design a deployment strategy.

Module 8: Evaluating Advanced Query Techniques

This module explains how to evaluate and practice using advanced query techniques when designing a SQL Server 2005 solution.

Lessons

- Evaluating Common Table Expressions
- Evaluating Pivot Queries
- Evaluating Ranking Queries

Lab 8: Evaluating Advanced Query Techniques

- Evaluating Common Table Expressions
- Evaluating Pivot Queries
- Evaluating Ranking Queries

After completing this module, students will be able to:

- Evaluate the use of Common Table Expressions.
- Evaluate the use of pivot queries.
- Evaluate the use of ranking queries.

Module 9: Evaluating Advanced XML Techniques

This module explains how to evaluate and practice using advanced XML techniques when designing a SQL Server 2005 solution.

Lessons

- Evaluating the Use of XQuery
- Creating a Strategy for Converting Data between XML and Relational Formats

Lab 9: Evaluating Advanced XML Techniques

- Evaluating the Use of XQuery
- Evaluating Ways of Converting XML into Relational Data

After completing this module, students will be able to:

- Evaluate the use of XQuery.
- Create a strategy for converting data between XML and relational formats.