

Course 2796: Designing an Analysis Solution Architecture Using Microsoft SQL Server 2005 Analysis Services

Introduction

Elements of this syllabus are subject to change. The purpose of this three day course is to teach business intelligence (BI) professionals working in enterprise environments how to design a multidimensional solution architecture that supports their BI solution. Students will go through the entire process-from capturing business and technical requirements, to deploying a multidimensional solution, to production. Students will also be taught to develop custom functionality and optimize a multidimensional solution.

The course focuses on the planning and design aspects of an analysis solution and does not teach students how to create Analysis Services database objects or how to use the development tools provided with SQL Server 2005.

Audience

This course is intended for experienced BI professionals. The target students for this course already have an understanding of how to use SQL Server 2005 tools to implement Analysis Services functionality, but need to develop their understanding of design principles and best practices when planning, implementing, and deploying an Analysis Services solution.

At Course Completion students will be able to:

After completing this course, students will be able to:

- Capture the business and technical requirements for an analysis solution.
- Design and implement a logical Online Analytical Processing (OLAP) solution architecture.
- Design physical storage for a multidimensional solution.
- Create calculated members and named sets.
- Implement Key Performance Indicators (KPIs), actions, and stored procedures.
- Design the infrastructure for an OLAP solution.
- Deploy and secure an Analysis Services solution in a production environment.
- Monitor and optimize an Analysis Services solution.
- Implement a data mining solution.

Prerequisites

Before attending this course, students must have:

- Have hands-on experience with database development tasks. For example:
 - Creating Transact-SQL queries
 - Writing and optimizing advanced queries (for example, queries that contain complex joins or subqueries)
 - Creating database objects such as tables, views, and indexes
- Have foundational conceptual understanding of data warehousing, data marts, and business intelligence. Students must be well versed on the subjects of data warehousing, data marts, and BI, and preferably have read at least one book by Ralph Kimball or Bill Inmon.
- Have a conceptual understanding of OLAP technologies, multidimensional data, MDX, and relational database modeling. For example, know what facts, dimensions, measures, calculated measures, and foreign keys are.
- Be familiar with SQL Server 2005 features, tools, and technologies. In particular, they must have built and queried an Analysis Services cube.

- Have foundational understanding of Microsoft Windows security. For example, how groups, delegation of credentials, and impersonation function in a security context.
- Have foundational understanding of Web-based architecture. For example, SSL, SOAP, and IIS-what they are and what their role is.
- Must understand the difference between replication and ETL.
- Already know how to use:
 - Microsoft Office Visio
 - Microsoft SQL Server Business Intelligence Development Studio
 - Microsoft SQL Server Management Studio
 - Performance Monitor
 - Microsoft SQL Server Profiler

Course Outline

Module 1: Capturing Business and Technical Requirements

In this module, students will first learn about key design principles that they should consider when defining the scope of a BI project. They will then learn how to identify the business and technical requirements to ensure that their solution meets the needs of its users.

Module 2: Designing and Implementing a Logical OLAP Solution Architecture

This module describes considerations and guidelines for designing an OLAP solution, including a relational data warehouse and an Analysis Services cube.

Module 3: Designing Physical Storage for a Multidimensional Solution

In this module, students will learn how to design an effective physical storage solution for a multidimensional application.

Module 4: Creating Calculations

In this module, students will learn how to create Multidimensional Expression (MDX) calculations. The module describes how to create calculated members, named sets, and scoped assignments.

Module 5: Extending Cube Functionality

In this module, students will learn about the benefits of KPIs, actions, and stored procedures. They will also learn how to implement KPIs, actions, and stored procedures in an Analysis Services cube.

Module 6: Designing an Analysis Services Infrastructure

In this module, students will learn how to design an appropriate infrastructure for an OLAP application.

Module 7: Deploying a Multidimensional Solution into Production

In this module, students will learn about and compare the different deployment methods available in SQL Server 2005 Analysis Services. They will also learn about how security in Analysis Services functions and how to protect their company's critical business information.

Module 8: Optimizing an OLAP Solution

In this module, students will learn how to monitor Analysis Services and how to optimize performance of their Analysis Services solutions.

Module 9: Implementing Data Mining

In this module, students will learn what a data mining solution is and how to design and implement data mining functionality with SQL Server Analysis Services.