Course Outline

(SSAS) SQL Server Analysis Services Multidimension Mode

Duration: 3 Days

OBJECTIVES

In this course, you will learn how to use Microsoft SQL Server Analysis Services (SSAS) to design and implement Multidimensional OLAP cubes to support Business Intelligence (BI) solutions. You will learn about the Microsoft SQL Server Visual Studio development environment (SQL Server 2008 Business Intelligence Development Studio (BIDS), SQL Server 2012/2016 Data Tools) for design, creation and deployment of SQL Server BISM (Business Intelligence Semantic Model) Multidimensional Mode projects, and SQL Server Management Studio for the management of Multidimensional databases. The course will take delegates through building a multidimensional cube in its simplest form through to extending the features within the cube by implementing MDX calculations, Key Performance Indicators (KPIs), Actions and Dimension/Cube Intelligence. The main emphasis of the course is on the design and creation of cubes, but basic administration and security of cubes are also covered. This course is suitable for delegates working with al
l versions of SQL Server from SQL Server 2008 through to SQL Server 2016.

PRE-REQUISITES

This course does not require any prior experience with Analysis Services 2008/2012/2014. It is assumed that delegates have working experience with SQL Server 2005, 2008, 2012 or 2014 and basic relational database concepts such as tables, queries, and indexing.

COURSE OUTLINE

Introduction To SQL Server Analysis Services (SSAS)
- Business Intelligence Semantic Model (BISM) Multidimensional Mode
- BISM Tabular Mode
- SQL Server Analysis Services 2012/2014

First Look at Multidimensional BISM
- Development, Administrative and Client Tools
- Upgrading to SSAS 2012/2104
- Using SQL Server Data Tools (SSDT - 2012/2014)
- Using Business Intelligence Development Studio (BIDS - 2008)
- Multidimensional Applications
- The Visual Studio Environment
- Creating a Project
- Creating an Analysis Services Database
- Creating a Data Source
- Creating a Data Source View
- Creating a Cube
- Using the Cube Wizard
- Deploying Browsing a Cube
- Using SQL Server Management Studio (SSMS)
- Querying the Cube in the MDX Query Editor

Understanding MDX
- What is MDX

- MDX Concepts
- Measures and Measure Groups
- Hierarchies and Hierarchy Levels
- Members
- Cells
- Tuples
- Sets
- MDX Queries
- MDX Expressions: Operators and Functions

Data Sources and Data Source Views
- Supported Data Sources
- Creating Data Source Views: DSV Wizard and DSV Designer
- Data Source Views in Depth
- Multiple Data Sources Within a DSV

Dimension Design
- Working with the Dimension Wizard
- Working with the Dimension Designer: Attributes, Attribute Relationships, User Hierarchies
- Browsing the Dimension
- Sorting Members of a Level
- Optimising Attributes
- Defining Translations in Dimensions
- Creating Snowflake Dimensions
- Creating Parent-Child Hierarchies

Cube Design
- The BISM Multidimensional Mode
- Creating a Cube Using the Cube Wizard
- Cube Dimensions
- Relationship Types: No Relationship, Regular, Fact, Many-to-Many, Referenced
- Measures and Measure Groups
- Calculated Members: Calculations
- Creating Perspectives
- Creating Translations
- Browsing Perspectives and Translations

Advanced Dimension Design
- Custom Rollups
- Unary Operators
- Naming Levels In Parent-Child Hierarchies
- Customising Dimension Properties: Ordering, All Member, Default Member, Unknown Member, Error Configurations, Storage Mode, Grouping Members
- Dimension Intelligence: Account, Time and Dimension
- Server Time Dimension
- Dimension Writeback

Advanced Cube Design
- Measure Groups and Measures
- Adding and Enhancing Dimensions
- Fact Relationships
- Many-To-Many Relationships
- Data Mining Dimensions

- Role-Playing Dimensions
- Adding Calculations To Cubes
- Key Performance Indicators (KPIs)
- Actions: URL redirection, Report redirection, Drill-through
- Cube Intelligence: Semi-Additive Measures, Currency Conversion
- Cube Partitions: Storage, Aggregation Design, Usage-based Optimisation
- Real-Time Cubes
- Defining Security
- Cell Writeback
- AMO Warnings

Administration and Management
- Management Studio
- Database Creation
- Managing SSAS Objects
- XMLA Scripts
- Processing SSAS Objects
- Managing Partitions
- Backup and Restore
- Detach and Attach
- Synchronisation
- Managing SSAS Security
- Online Mode
- Programmatic and Advanced Administration
- Analysis Management Objects (AMO)

Designing Multidimensional BISM for Performance
- Fine Tuning Dimensions and Cubes
- Optimising For Processing
- Designing Aggregations

Introduction to Data Mining, Multidimensional BISM, and Data Mining Add-Ins For Microsoft Office 2010/2013
- Data Mining Process
- Data Mining Algorithms
- Data Mining Models
- Using Data Mining with Excel

Analysing Cubes With Microsoft Office Components
- Analysing Data in Excel: Pivot Tables, Pivot Charts
- Analysing Data in PowerPivot

Other Features
- BISM Tabular Mode Overview
- PowerPivot Overview