

Solving Business Problems with MDX in SQL Server 2008

3-Day (BI-MDX2008-301-EN)

Description

This hands-on, instructor led course will guide you step-by-step through the Analysis Service 2008 Multi Dimensional eXpression (MDX) OLAP query language. You will learn a practical approach to solve real-world problems using MDX expressions, calculations and queries, which will allow users to extract valuable information.

Audience

This course is intended for:

- Developers creating Microsoft Analysis Services solutions
- Database Administrators who are optimizing Microsoft Analysis Services query and browsing speed
- Analysis Services Power Users who want to convert business rules to MDX calculations and queries
- Those who are using MDX with Reporting Services
- Those who are using MDX with PerformancePoint Services for SharePoint Services

Prerequisites

Before attending this course, it is recommended that students have the following skills:

- Basic understanding of Analysis Services
- An understanding of multidimensional concepts – cubes, dimensions, attributes, and hierarchies

Course Objectives

Upon completion of this course, the student will be able to:

- Convert business requirements into MDX calculations and queries
- Query data from a cube
- Navigate hierarchies
- Create calculated members
- Create named sets
- Create time-based calculations
- Use all the MDX functions
- Write code to assign values in a specific portion of the cube using the MDX Script
- Debug, analyze, and optimize MDX queries
- Use MDX to create KPIs
- Use MDX in setting Analysis Services security
- Use MDX in Reporting Services
- Use MDX in PerformancePoint Services for SharePoint Services

Course Outline

Day 1 - Introduction and Basics

Module 01: MDX Concepts

- What is MDX?
- MDX Design and Query Tools
- Basic Concepts
 - Naming (Identifiers)
 - Cubes/Dimensions/Measures
 - Attributes/Hierarchies/Levels
 - Members/Tuples/Sets
 - Queries

Module 02: Basic Calculations

- How to define calculations
- Basic math in calculations
- Allocations and tuples

LAB 02A: Basic Calculations

- Use BI Development Studio online and offline
- Practice basic math with measures
- Percent calculations

LAB 02B: Basic Allocation Calculations

Module 03: Navigation in Hierarchies

- Why navigate hierarchies?
- How to create a basic set from a hierarchy
- How to navigate between members

LAB 03A: Simple Navigation in a Hierarchy

- Members
- Children
- PrevMember / NextMember
- Using IIF and format_string

LAB 03B: Usage of Parent and Descendants

- Parent
- Descendants

DAY 2

Module 04: Sets

- Multiply , Add, and Subtract Sets
- Aggregating Sets
- Filtering Sets
- Ranking

LAB 04A: Manipulating Sets

- Multiplying Sets
- Adding and Subtracting Sets

LAB 04B: Aggregating Sets

LAB 04C: Advanced Set Operations

- Topcount
- Rank
- Order
- Filter

Module 05: Common Calculations

- Distributions
- Averages
- Time Based References
- Choose Value Based on Another Dimension
- Handle Two Exclusive Time Dimensions

LAB 05A: Distributions

LAB 05B: Averages and Time Calculations

Module 06: The MDX Script

- Overview of MDX Script
- Calculate Command
- Modifying Objects
- Creating Calculated Members
- Creating Named Sets
- Using Assignments and Scopes
- Creating a Date Calculation Hierarchy

LAB 06A: Enhancing your cube with the MDX Script

DAY 3

Module 07: Advanced MDX Topics

- NonEmpty Function
- AutoExists and Exists
- SubSelect and Subcubes
- Visual Totals in Subcubes/SubSelect
- Cell Calculations
- Slicing on Multiple Members
- Recursion

LAB 07A: Using Advanced MDX Concepts

Module 08: Optimizing and Debugging MDX

- MDX Query Optimization Strategy
- Debugging Tools
- Fixing Bottlenecks in the Storage Engine and the Formula Engine
- Taking Advantage of Performance Enhancements in AS2008
- Checklist for Optimizing MDX

LAB 08A: Optimizing and Debugging MDX

Module 09: Creating and Querying KPIs

- What is an Analysis Services KPI?
- Querying a KPI
- Creating a KPI in Analysis Services
- Creating a Session KPI

LAB 09A: Creating a KPI

Module 10: Using MDX in Setting Analysis Services Security

- Using MDX in Security
- Security and Performance
- Role-based and Dynamic Security
- The UserName Function
- Dynamic Security in Regular Hierarchies
- Dynamic Security in Parent-Child Hierarchies

Module 11: MDX for Reporting Services

- Limitations of MDX in Reporting Services
- MDX Generator
- Manual MDX
- Using Parameters

LAB 11A: Creating an MDX Based Report

LAB 11B: Setting Up a Parameter

Module 12: Using MDX in Special Situations

- Actions
- Drillthrough
- Creating Local Cubes for Off-Line Browsing
- Writing Back to a Cube

LAB 12A: Actions, Drillthrough, Local Cubes, Write-Back**Module 13: Using MDX in PerformancePoint Services for Microsoft Office SharePoint Services**

- Three Strategies Regarding the Use of MDX in PerformancePoint Services
- Places Where MDX is Used in PPS
- Debugging MDX in PPS
- Comparing the Use of MDX and STPS (Simple Time Period Specification)