

SQL Server® Analysis Services: Hands-On - 4 Days

Analysing Data for Business Intelligence

Course 139 Overview

- You Will Learn How To**
- Leverage SQL Server Analysis Services to produce business intelligence solutions
 - Create and deploy multidimensional data cubes
 - Extend hierarchies and exploit advanced dimension relationships
 - Build custom solutions with MDX
 - Implement key performance indicators (KPIs) to monitor business objectives
 - Make smarter business decisions with data mining techniques

Course Benefits With the current explosion of data in today's enterprise environment, traditional methods of querying and reporting on information are no longer sufficient. This course provides the knowledge and skills to analyse and discover trends in your data warehouse. You learn to create On-Line Analytical Processing (OLAP) cubes using business intelligence tools and to automate their maintenance using XMLA scripts and SQL Server Integration Services (SSIS) packages.

Who Should Attend Those designing, creating or developing analysis cubes from a database. A working knowledge of relational databases is assumed.

Hands-On Training Throughout this course, you gain extensive experience with SQL Server Analysis Services. Practical exercises include:

- Creating and deploying a cube
- Building aggregations with the Aggregation Design Wizard
- Automating cube processing with an XMLA script
- Configuring many-to-many dimension relationships
- Implementing an action to open a Reporting Services report
- Retrieving data using MDX
- Discovering key influencers with data mining

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Course 139 Outline

Building and Modifying an OLAP Cube

Designing a Unified Dimension Model (UDM)

- Identifying measures and their suitable granularities
- Adding new measure groups and creating custom measures

Creating dimensions

- Implementing a Star and Snowflake Schema
- Identifying role-play dimensions
- Adding dimension attributes and properties
- Configuring multilanguage support

Extending the Cube with Hierarchies

Creating hierarchies

- Building natural hierarchies and creating attribute relationships
- Distinguishing between ragged, balanced and unbalanced hierarchies
- Discretising attribute values with the Clusters and Equal Areas algorithms

Parent-child relationships

- Defining parent and key attributes
- Generating level captions with the Naming Template feature
- Removing repeated entries with the MembersWithData property

Exploiting Advanced Dimension Relationships

Storing dimension data in fact tables

- Building a degenerate dimension
- Configuring fact relationships

Saving space with referenced dimension relationships

- Identifying candidates for referenced relationships
- Utilising the Dimension Usage tab to configure referenced relationships

Including dimensions with many-to-many relationships

- Implementing intermediate measure groups and dimensions
- Reporting on many-to-many dimensions without double counting

Designing Optimal Cubes

Assembling cube components

- Selecting the appropriate fact tables

- Adding cube dimensions
- Distinguishing between additive, semiadditive and nonadditive measures
- Simplifying cubes with perspectives

Managing Cubes

Designing storage and aggregations

- Choosing between ROLAP, MOLAP and HOLAP
- Partitioning cubes for improved performance
- Designing aggregations with the Aggregation Design Wizard
- Leveraging the Usage-Based Optimisation Wizard

Automating processing and deployment

- Exploiting XMLA scripts and SSIS
- Refreshing cubes with Proactive Caching
- Deploying cubes easily through the enterprise

Performing Advanced Analysis with MDX

Retrieving data with MDX

- Defining tuples, sets and calculated members
- Querying cubes with MDX
- Utilising set functions

Monitoring business performance with KPIs

- Building goal, status and trend expressions
- Using PARALLELPERIOD to compare with past time periods
- Simplifying KPI definitions using the KPIValue and KPIGoal functions

Enhancing cubes with MDX

- Adding runtime calculations to the cube
- Comparing MDX calculations with DSV calculated columns
- Adding drill-through and URL actions

Gaining Business Advantage with Data Mining

Determining the correct model

- Identifying business tasks for data mining
- Training and testing data mining algorithms
- Comparing algorithms with the accuracy chart and classification matrix
- Optimising returns with the Profit Chart

Performing real-world predictions

- Classifying with the Decision Trees, Neural Network and Naive Bayes algorithms
- Predicting with the Time Series algorithm

Deploying models

- Predicting new cases with algorithms
- Utilising DMX to perform batch and singleton predictions
- Exploring results with data mining viewers