MOC 20768 C: Developing SQL Data Models

Course Summary

Description
The focus of this three-day instructor-led course is on creating managed enterprise BI solutions. It describes how to implement both multidimensional and tabular data models and how to create cubes, dimensions, measures, and measure groups. This course helps you prepare for the Exam 70-768.

Objectives
By the end of this course, students will be able to:

- Describe the components, architecture, and nature of a BI solution
- Create a multidimensional database with Analysis Services
- Implement dimensions in a cube
- Implement measures and measure groups in a cube
- Use MDX syntax
- Customize a cube
- Implement a tabular database
- Use DAX to query a tabular model
- Use data mining for predictive analysis

Topics
- Introduction to Business Intelligence and Data Modeling
- Creating Multidimensional Databases
- Working with Cubes and Dimensions
- Working with Measures and Measure Groups
- Introduction to MDX
- Customizing Cube Functionality
- Implementing a Tabular Data Model by Using Analysis Services
- Introduction to Data Analysis Expression (DAX)
- Performing Predictive Analysis with Data Mining

Audience
The primary audience for this course is database professionals who need to fulfill BI Developer role to create enterprise BI solutions. Primary responsibilities will include:

- Implementing multidimensional databases by using SQL Server Analysis Services
- Creating tabular semantic data models for analysis by using SQL Server Analysis Services

Prerequisite
Before attending this course, students must have experience of querying data using Transact-SQL.

Duration
Three Days
Course Outline

I. Introduction to Business Intelligence and Data Modeling
This module introduces key BI concepts and the Microsoft BI product suite.
A. Introduction to Business Intelligence
B. The Microsoft business intelligence platform
Lab: Exploring a BI Solution
- Exploring a Data Warehouse
- Exploring a data model

II. Creating Multidimensional Databases
This module describes how to create multidimensional databases using SQL Server Analysis Services.
A. Introduction to Multidimensional Analysis
B. Creating Data Sources and Data Source Views
C. Creating a Cube
D. Overview of Cube Security
E. Configure SSAS
F. Monitoring SSAS
Lab: Creating a multidimensional database
- Creating a Data Source
- Creating and Modifying a data source View
- Creating and Modifying a Cube

III. Working with Cubes and Dimensions
This module describes how to implement dimensions in a cube.
A. Configuring Dimensions
B. Defining Attribute Hierarchies
C. Sorting and Grouping Attributes
D. Slowly Changing Dimensions
Lab: Working with Cubes and Dimensions
- Configuring Dimensions
- Defining Relationships and Hierarchies
- Sorting and Grouping Dimension Attributes

IV. Working with Measures and Measure Groups
This module describes how to implement measures and measure groups in a cube.
A. Working with Measures
B. Working with Measure Groups
Lab: Configuring Measures and Measure Groups
- Configuring Measures
- Defining Dimension Usage and Relationships
- Configuring Measure Group Storage

V. Introduction to MDX
This module describes the MDX syntax and how to use MDX.
A. MDX fundamentals
B. Adding Calculations to a Cube
C. Using MDX to Query a Cube
Lab: Using MDX
- Querying a cube using MDX
- Creating a Calculated Member

VI. Customizing Cube Functionality
This module describes how to customize a cube.
A. Introduction to Business Intelligence
B. The Implementing Key Performance Indicators
C. Implementing Actions
D. Implementing Perspectives
E. Implementing Translations
Lab: Customizing a Cube
- Implementing a KPI
- Implementing an action
- Implementing a perspective
- Implementing a translation

VII. Implementing a Tabular Data Model by Using Analysis Services
This module describes how to implement a tabular data model in Power Pivot.
A. Introduction to Tabular Data Models
B. Creating a Tabular Data Model
C. Using an Analysis Services Tabular Data Model in an Enterprise BI Solution
Lab: Working with an Analysis Services Tabular Data Model
- Creating an Analysis Services Tabular Data Model
- Configure Relationships and Attributes
- Configuring Data Model for an Enterprise BI Solution.
Course Outline (cont.)

VIII. Introduction to Data Analysis Expression (DAX)
This module describes how to use DAX to create measures and calculated columns in a tabular data model.
A. DAX Fundamentals
B. Using DAX to Create Calculated Columns and Measures in a Tabular Data Model
Lab: Creating Calculated Columns and Measures by using DAX
- Creating Calculated Columns
- Creating Measures
- Creating a KPI
- Creating a Parent – Child Hierarchy

IX. Performing Predictive Analysis with Data Mining
This module describes how to use data mining for predictive analysis.
A. Overview of Data Mining
B. Creating a Custom Data Mining Solution
C. Validating a Data Mining Model
D. Connecting to and Consuming a Data-Mining Model
E. Using the Data Mining add-in for Excel
Lab: Using Data Mining
- Creating a Data Mining Structure and Model
- Exploring Data Mining Models
- Validating Data Mining Models
- Consuming a Data Mining Model
- Using the Excel Data Mining add-in