

## [MS20768]: Developing SQL Data Models

Length	: 3 Days
Audience(s)	: IT Professionals
Level	: 300
Technology	: Microsoft SQL Server
Delivery Method	: Instructor-led (Classroom)

### Course Overview

This three-day instructor-led course is aimed at database professionals who fulfil a Business Intelligence (BI) developer role. This course looks at implementing multidimensional databases by using SQL Server Analysis Services (SSAS), and at creating tabular semantic data models for analysis with SSAS.

### Audience Profile

The primary audience for this course are database professionals who need to fulfil 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

The secondary audiences for this course are 'power' information workers/data analysts.

### At Course Completion

After completing 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

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## Pre-Requisites

This course requires that you meet the following prerequisites:

- Basic knowledge of the Microsoft Windows operating system and its core functionality
- Working knowledge of Transact-SQL
- Working knowledge of relational databases

## Course Outline

### Module 1: Introduction to Business Intelligence and Data Modeling

This module introduces key BI concepts and the Microsoft BI product suite.

#### Lessons

- Introduction to Business Intelligence
- The Microsoft business intelligence platform

#### Lab: Exploring a Data Warehouse

**After completing this module, you will be able to:**

- Describe the concept of business intelligence
- Describe the Microsoft business intelligence platform

### Module 2: Creating Multidimensional Databases

This module describes the steps required to create a multidimensional database with analysis services.

#### Lessons

- Introduction to multidimensional analysis
- Creating data sources and data source views
- Creating a cube
- Overview of cube security

#### Lab: Creating a multidimensional database

**After completing this module, you will be able to:**

- Use multidimensional analysis
- Create data sources and data source views
- Create a cube
- Describe cube security

### Module 3: Working with Cubes and Dimensions

This module describes how to implement dimensions in a cube.

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**Lessons**

- Configuring dimensions
- Define attribute hierarchies
- Sorting and grouping attributes

**Lab: Working with Cubes and Dimensions****After completing this module, you will be able to:**

- Configure dimensions
- Define attribute hierarchies
- Sort and group attributes

**Module 4: Working with Measures and Measure Groups**

This module describes how to implement measures and measure groups in a cube.

**Lessons**

- Working with measures
- Working with measure groups

**Lab: Configuring Measures and Measure Groups****After completing this module, you will be able to:**

- Work with measures
- Work with measure groups

**Module 5: Introduction to MDX**

This module describes the MDX syntax and how to use MDX.

**Lessons**

- MDX fundamentals
- Adding calculations to a cube
- Using MDX to query a cube

**Lab: Using MDX****After completing this module, you will be able to:**

- Describe the fundamentals of MDX
- Add calculations to a cube
- Query a cube using MDX

**Module 6: Customizing Cube Functionality**

This module describes how to customize a cube.

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**Lessons**

- Implementing key performance indicators
- Implementing actions
- Implementing perspectives
- Implementing translations

**Lab: Customizing a Cube****After completing this module, you will be able to:**

- Implement key performance indicators
- Implement actions
- Implement perspectives
- Implement translations

**Module 7: Implementing a Tabular Data Model by Using Analysis Services**

This module describes how to implement a tabular data model in PowerPivot.

**Lessons**

- Introduction to tabular data models
- Creating a tabular data model
- Using an analysis services tabular model in an enterprise BI solution

**Lab: Working with an Analysis services tabular data model****After completing this module, you will be able to:**

- Describe tabular data models
- Create a tabular data model
- Be able to use an analysis services tabular data model in an enterprise BI solution

**Module 8: Introduction to Data Analysis Expression (DAX)**

This module describes how to use DAX to create measures and calculated columns in a tabular data model.

**Lessons**

- DAX fundamentals
- Using DAX to create calculated columns and measures in a tabular data model

**Lab: Creating Calculated Columns and Measures by using DAX****After completing this module, you will be able to:**

- Describe the fundamentals of DAX
- Use DAX to create calculated columns and measures in a tabular data model

**Module 9: Performing Predictive Analysis with Data Mining**

This module describes how to use data mining for predictive analysis.

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## Lessons

- Overview of data mining
- Using the data mining add-in for Excel
- Creating a custom data mining solution
- Validating a data mining model
- Connecting to and consuming a data mining model

## Lab: Perform Predictive Analysis with Data Mining

### After completing this module, you will be able to:

- Describe data mining
- Use the data mining add-in for Excel
- Create a custom data mining solution
- Validate a data mining solution
- Connect to and consume a data mining solution

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