

Developing SQL Data Models

Course Outline

Module 1: Introduction to Business Intelligence and Data Modelling

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 BI Solution

- Exploring a Data Warehouse
- Exploring a data model

After completing this module, students will be able to:

- Describe BI scenarios, trends, and project roles.
- Describe the products that make up the Microsoft BI platform.

Module 2: Creating Multidimensional Databases

This module describes how to create multidimensional databases using SQL Server Analysis Services.

Lessons

- Introduction to Multidimensional Analysis
- Data Sources and Data Source Views
- Cubes
- Overview of Cube Security
- Configure SSAS
- Monitoring SSAS

Lab : Creating a multidimensional database

- Creating a Data Source
- Creating and Configuring a data Source View
- Creating and Configuring a Cube
- Adding a Dimension to a Cube

After completing this module, you will be able to:

- Describe considerations for a multidimensional database.
- Create data sources and data source views.

- Create a cube
- Implement security in a multidimensional database.
- Configure SSAS to meet requirements including memory limits, NUMA and disk layout.
- Monitor SSAS performance.

Module 3: Working with Cubes and Dimensions

This module describes how to implement dimensions in a cube.

Lessons

- Configuring Dimensions
- Defining Attribute Hierarchies
- Implementing Sorting and Grouping Attributes
- Slowly Changing Dimensions

Lab : Working with Cubes and Dimensions

- Configuring Dimensions
- Defining Relationships and Hierarchies
- Sorting and Grouping Dimension Attributes

After completing this module, you will be able to:

- Configure dimensions.
- Define attribute hierarchies.
- Implement sorting and grouping for attributes.
- Implement slowly changing dimensions.

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

- Configuring Measures
- Defining Regular Relationships
- Configuring Measure Group Storage

After completing this module, you will be able to:

- Configure measures.

- Configure 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

- Querying a cube using MDX
- Adding a Calculated Member

After completing this module, you will be able to:

- Use basic MDX functions.
- Use MDX to add calculations to a cube.
- Use MDX to query a cube.

Module 6: Customizing Cube Functionality

This module describes how to customize a cube.

Lessons

- Implementing Key Performance Indicators
- Implementing Actions
- Implementing Perspectives
- Implementing Translations

Lab : Customizing a Cube

- Implementing an action
- Implementing a perspective
- Implementing a translation

After completing this module, you will be able to:

- Implement KPIs in a Multidimensional database
- Implement Actions in a Multidimensional database
- Implement perspectives in a Multidimensional database
- Implement translations in a Multidimensional database

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

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

Lessons

- Introduction to Tabular Data Models
- Creating a Tabular Data Model
- 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.

After completing this module, students will be able to:

- Describe tabular data models
- Describe how to create a tabular data model
- Use an Analysis Services Tabular 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

- Creating Calculated Columns
- Creating Measures
- Creating a KPI
- Creating a Parent – Child Hierarchy

After completing this module, students will be able to:

- Describe the key features of DAX
- Create calculated columns and measures by using DAX

Module 9: Performing Predictive Analysis with Data Mining

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

Lessons

- Overview of Data Mining
- Creating a Custom Data Mining Solution
- Validating a Data Mining Model
- Connecting to and Consuming a Data-Mining Model
- 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