



20767: Implementing a SQL Data Warehouse

Course ID #: 1401-809-16-W

Hours: 35

Course Content

Course Description:

This five-day instructor-led course provides students with the knowledge and skills to provision a Microsoft SQL Server 2016 database. The course covers SQL Server 2016 provision both on-premise and in Azure, and covers installing from new and migrating from an existing install.

At Course Completion:

After completing this course, student will be able to:

- Provision a Database Server.
- Upgrade SQL Server.
- Configure SQL Server.
- Manage Databases and Files (shared).

Target Student:

The primary audience for this course are database professionals who need to fulfil a Business Intelligence Developer role. They will need to focus on hands-on work creating BI solutions including Data Warehouse implementation, ETL, and data cleansing.

Prerequisites:

In addition to their professional experience, students who attend this training should already have the following technical knowledge:

- At least 2 years' experience of working with relational databases, including:
- Designing a normalized database.
- Creating tables and relationships.
- Querying with Transact-SQL.
- Some exposure to basic programming constructs (such as looping and branching).
- An awareness of key business priorities such as revenue, profitability, and financial accounting is desirable.

Topics:

Module 1: Introduction to Data Warehousing

Describe data warehouse concepts and architecture considerations.

- Overview of Data Warehousing
- Considerations for a Data Warehouse Solution

Lab: Exploring a Data Warehouse Solution

Lessons



20767: Implementing a SQL Data Warehouse

Course ID #: 1401-809-16-W

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After completing this module, you will be able to:

- Describe the key elements of a data warehousing solution
- Describe the key considerations for a data warehousing solution

Module 2: Planning Data Warehouse Infrastructure

This module describes the main hardware considerations for building a data warehouse.

Lessons

- Considerations for Building a Data Warehouse
- Data Warehouse Reference Architectures and Appliances

Lab: Planning Data Warehouse Infrastructure

After completing this module, you will be able to:

- Describe the main hardware considerations for building a data warehouse
- Explain how to use reference architectures and data warehouse appliances to create a data warehouse

Module 3: Designing and Implementing a Data Warehouse

This module describes how you go about designing and implementing a schema for a data warehouse.

Lessons

- Logical Design for a Data Warehouse
- Physical Design for a Data Warehouse

Lab: Implementing a Data Warehouse Schema

After completing this module, you will be able to:

- Implement a logical design for a data warehouse
- Implement a physical design for a data warehouse

Module 4: Columnstore Indexes

This module introduces Columnstore Indexes.

Lessons

- Introduction to Columnstore Indexes
- Creating Columnstore Indexes
- Working with Columnstore Indexes

Lab: Using Columnstore Indexes

After completing this module, you will be able to:

- Create Columnstore indexes
- Work with Columnstore Indexes

Module 5: Implementing an Azure SQL Data Warehouse

This module describes Azure SQL Data Warehouses and how to implement them.

Lessons

- Advantages of Azure SQL Data Warehouse
- Implementing an Azure SQL Data Warehouse
- Developing an Azure SQL Data Warehouse
- Migrating to an Azure SQ Data Warehouse

Lab: Implementing an Azure SQL Data Warehouse



20767: Implementing a SQL Data Warehouse

Course ID #: 1401-809-16-W

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After completing this module, you will be able to:

- Describe the advantages of Azure SQL Data Warehouse
- Implement an Azure SQL Data Warehouse
- Describe the considerations for developing an Azure SQL Data Warehouse
- Plan for migrating to Azure SQL Data Warehouse

Module 6: Creating an ETL Solution

At the end of this module you will be able to implement data flow in a SSIS package.

Lessons

- Introduction to ETL with SSIS
- Exploring Source Data
- Implementing Data Flow

Lab: Implementing Data Flow in an SSIS Package

After completing this module, you will be able to:

- Describe ETL with SSIS
- Explore Source Data
- Implement a Data Flow

Module 7: Implementing Control Flow in an SSIS Package

This module describes implementing control flow in an SSIS package.

Lessons

- Introduction to Control Flow
- Creating Dynamic Packages
- Using Containers

Lab: Implementing Control Flow in an SSIS Package

Lab: Using Transactions and Checkpoints

After completing this module, you will be able to:

- Describe control flow
- Create dynamic packages
- Use containers

Module 8: Debugging and Troubleshooting SSIS Packages

This module describes how to debug and troubleshoot SSIS packages.

Lessons

- Debugging an SSIS Package
- Logging SSIS Package Events
- Handling Errors in an SSIS Package

Lab: Debugging and Troubleshooting an SSIS Package

After completing this module, you will be able to:

- Debug an SSIS package
- Log SSIS package events
- Handle errors in an SSIS package

Module 9: Implementing an Incremental ETL Process

This module describes how to implement an SSIS solution that supports incremental DW loads and changing data.

Lessons

- Introduction to Incremental ETL
- Extracting Modified Data
- Temporal Tables



20767: Implementing a SQL Data Warehouse

Course ID #: 1401-809-16-W

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Lab: Extracting Modified DataLab: Loading Incremental Changes

After completing this module, you will be able to:

- Describe incremental ETL
- Extract modified data
- Describe temporal tables

Module 10: Enforcing Data Quality

This module describes how to implement data cleansing by using Microsoft Data Quality services.

Lessons

- Introduction to Data Quality
- Using Data Quality Services to Cleanse Data
- Using Data Quality Services to Match Data

Lab: Cleansing DataLab : De-duplicating Data

After completing this module, you will be able to:

- Describe data quality services
- Cleanse data using data quality services
- Match data using data quality services
- De-duplicate data using data quality services

Module 11: Using Master Data Services

This module describes how to implement master data services to enforce data integrity at source.

Lessons

- Master Data Services Concepts
- Implementing a Master Data Services Model
- Managing Master Data
- Creating a Master Data Hub

Lab: Implementing Master Data Services

After completing this module, you will be able to:

- Describe the key concepts of master data services
- Implement a master data service model
- Manage master data
- Create a master data hub

Module 12: Extending SQL Server Integration Services (SSIS)

This module describes how to extend SSIS with custom scripts and components.

Lessons

- Using Custom Components in SSIS
- Using Scripting in SSIS

Lab: Using Scripts and Custom Components

After completing this module, you will be able to:

- Use custom components in SSIS
- Use scripting in SSIS

Module 13: Deploying and Configuring SSIS Packages

This module describes how to deploy and configure SSIS packages.

Lessons

- Overview of SSIS Deployment
- Deploying SSIS Projects
- Planning SSIS Package Execution

Lab: Deploying and Configuring SSIS Packages



20767: Implementing a SQL Data Warehouse

Course ID #: 1401-809-16-W

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After completing this module, you will be able to:

- Describe an SSIS deployment
- Deploy an SSIS package
- Plan SSIS package execution

Module 14: Consuming Data in a Data Warehouse

This module describes how to debug and troubleshoot SSIS packages.

Lessons

- Introduction to Business Intelligence
- Introduction to Reporting
- An Introduction to Data Analysis
- Analyzing Data with Azure SQL Data Warehouse

Lab: Using Business Intelligence Tools

After completing this module, you will be able to:

- Describe at a high level business intelligence
- Show an understanding of reporting
- Show an understanding of data analysis
- Analyze data with Azure SQL data warehouse