Implementing a SQL 2016 Data Warehouse
(MOC20767)

Course 21767 – 40 Hours

Overview

This 5-day instructor led course describes how to implement a data warehouse platform to support a BI solution. Students will learn how to create a data warehouse with Microsoft® SQL Server® 2016 and with Azure SQL Data Warehouse, to implement ETL with SQL Server Integration Services, and to validate and cleanse data with SQL Server Data Quality Services and SQL Server Master Data Services.

On Completion, Delegates will be able to

- Describe the key elements of a data warehousing solution
- Describe the main hardware considerations for building a data warehouse
- Implement a logical design for a data warehouse
- Implement a physical design for a data warehouse
- Create columnstore indexes
- Implementing an Azure SQL Data Warehouse
- Describe the key features of SSIS
- Implement a data flow by using SSIS
- Implement control flow by using tasks and precedence constraints
- Create dynamic packages that include variables and parameters
- Debug SSIS packages
- Describe the considerations for implement an ETL solution
- Implement Data Quality Services
- Implement a Master Data Services model
- Describe how you can use custom components to extend SSIS
- Deploy SSIS projects
- Describe BI and common BI scenarios

Who Should Attend

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

- 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.

Course Contents

Module 1: Introduction to Data Warehousing
Describe data warehouse concepts and architecture considerations.
- Overview of Data Warehousing
- Considerations for a Data Warehouse Solution

Module 2: Planning Data Warehouse Infrastructure
This module describes the main hardware considerations for building a data warehouse.
- Considerations for Building a Data Warehouse
- Data Warehouse Reference Architectures and Appliances

Module 3: Designing and Implementing a Data Warehouse
This module describes how you go about designing and implementing a schema for a data warehouse.
- Logical Design for a Data Warehouse
- Physical Design for a Data Warehouse

Module 4: Columnstore Indexes
This module introduces Columnstore Indexes.
- Introduction to Columnstore Indexes
- Creating Columnstore Indexes
- Working with Columnstore Indexes

Module 5: Implementing an Azure SQL Data Warehouse
This module describes Azure SQL Data Warehouses and how to implement them.
- 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

Module 6: Creating an ETL Solution
At the end of this module you will be able to implement data flow in a SSIS package.
- Introduction to ETL with SSIS
- Exploring Source Data
- Implementing Data Flow

Module 7: Implementing Control Flow in an SSIS Package
This module describes implementing control flow in an SSIS package.
- Introduction to Control Flow
- Creating Dynamic Packages
- Using Containers

Module 8: Debugging and Troubleshooting SSIS Packages
This module describes how to debug and troubleshoot SSIS packages.
- Debugging an SSIS Package
- Logging SSIS Package Events
- Handling 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.
- Introduction to Incremental ETL
- Extracting Modified Data
- Temporal Tables

Module 10: Enforcing Data Quality
This module describes how to implement data cleansing by using Microsoft Data Quality services.
- Introduction to Data Quality
- Using Data Quality Services to Cleanse Data
- Using Data Quality Services to Match Data

Module 11: Using Master Data Services
This module describes how to implement master data services to enforce data integrity at source.
- Master Data Services Concepts
- Implementing a Master Data Services Model
- Managing Master Data
- Creating a Master Data Hub

Module 12: Extending SQL Server Integration Services (SSIS)
This module describes how to extend SSIS with custom scripts and components.
- Using Custom Components in SSIS
- Using Scripting in SSIS

Module 13: Deploying and Configuring SSIS Packages
This module describes how to deploy and configure SSIS packages.
- Overview of SSIS Deployment
- Deploying SSIS Projects
- Planning SSIS Package Execution

Module 14: Consuming Data in a Data Warehouse
This module describes how to debug and troubleshoot SSIS packages.
- Introduction to Business Intelligence
- Introduction to Reporting
- An Introduction to Data Analysis
- Analyzing Data with Azure SQL Data Warehouse