20767 - Implementing a SQL Data Warehouse

Duration: **5 days**

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.

Target Audience:

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.

- 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

Module 1: Introduction to Data Warehousing

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

Lab : Exploring a Data Warehouse Solution

Module 2: Planning Data Warehouse Infrastructure

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

Lab : Planning Data Warehouse Infrastructure

Module 3: Designing and Implementing a Data Warehouse

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

Lab : Implementing a Data Warehouse Schema

Module 4: Columnstore Indexes

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

Lab : Using Columnstore Indexes

Module 5: Implementing an Azure SQL Data Warehouse

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

Module 6: Creating an ETL Solution

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

Lab : Implementing Data Flow in an SSIS Package

Module 7: 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

Module 8: Debugging and Troubleshooting SSIS Packages

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

Lab : Debugging and Troubleshooting an SSIS Package

Module 9: Implementing an Incremental ETL Process

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

Lab : Extracting Modified Data

Lab : Loading Incremental Changes

Module 10: Enforcing Data Quality

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

Lab : Cleansing Data

Lab : De-duplicating Data

Pre-requisites:

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.

At Course Completion:

After completing this course, students 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
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- Describe BI and common BI scenarios

Module 11: Using Master Data Services

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

Lab : Implementing Master Data Services

Module 12: Extending SQL Server Integration Services (SSIS)

Lessons
- Using Custom Components in SSIS
- Using Scripting in SSIS

Lab : Using Scripts and Custom Components

Module 13: Deploying and Configuring SSIS Packages

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

Lab : Deploying and Configuring SSIS Packages

Module 14: Consuming Data in a Data Warehouse

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

Lab : Using Business Intelligence Tools