20767 Implementing a SQL Data Warehouse

Course Overview
This 5-day 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.

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.

Course Objectives
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
- 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

Course Outline
1 Introduction to Data Warehousing
   Overview of Data Warehousing
   Considerations for a Data Warehouse Solution
   Lab : Exploring a Data Warehouse Solution
2 Planning Data Warehouse Infrastructure
   Considerations for Building a Data Warehouse
   Data Warehouse Reference Architectures and Appliances
   Lab : Planning Data Warehouse Infrastructure
3 Designing and Implementing a Data Warehouse
   Logical Design for a Data Warehouse
   Physical Design for a Data Warehouse
   Lab : Implementing a Data Warehouse Schema
4 Columnstore Indexes
   Introduction to Columnstore Indexes
   Creating Columnstore Indexes
   Working with Columnstore Indexes
   Lab : Using Columnstore Indexes
5 Implementing an Azure SQL Data Warehouse
Advantages of Azure SQL Data Warehouse
Implementing an Azure SQL Data Warehouse
Developing an Azure SQL Data Warehouse
Migrating to an Azure SQL Data Warehouse
Lab: Implementing an Azure SQL Data Warehouse

6 Creating an ETL Solution
Introduction to ETL with SSIS
Exploring Source Data
Implementing Data Flow
Lab: Implementing Data Flow in an SSIS Package

7 Implementing Control Flow in an SSIS Package
Introduction to Control Flow
Creating Dynamic Packages
Using Containers
Lab: Implementing Control Flow in an SSIS Package
Lab: Using Transactions and Checkpoints

8 Debugging and Troubleshooting SSIS Packages
Debugging an SSIS Package
Logging SSIS Package Events
Handling Errors in an SSIS Package
Lab: Debugging and Troubleshooting an SSIS Package

9 Implementing an Incremental ETL Process
Introduction to Incremental ETL
Extracting Modified Data
Temporal Tables
Lab: Extracting Modified Data
Lab: Loading Incremental Changes

10 Enforcing Data Quality
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

11 Using Master Data Services
Master Data Services Concepts
Implementing a Master Data Services Model
Managing Master Data
Creating a Master Data Hub
Lab: Implementing Master Data Services

12 Extending SQL Server Integration Services (SSIS)
Using Custom Components in SSIS
Using Scripting in SSIS
Lab: Using Scripts and Custom Components
13 Deploying and Configuring SSIS Packages
Overview of SSIS Deployment
Deploying SSIS Projects
Planning SSIS Package Execution
Lab : Deploying and Configuring SSIS Packages

14 Consuming Data in a Data Warehouse
Introduction to Business Intelligence
Introduction to Reporting
An Introduction to Data Analysis
Analyzing Data with Azure SQL Data Warehouse
Lab : Using Business Intelligence Tools