20463 Implementing a Data Warehouse with Microsoft® SQL Server®

Course Overview

This 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 2014, implement ETL with SQL Server Integration Services, and validate and cleanse data with SQL Server Data Quality Services and SQL Server Master Data Services. IMPORTANT NOTE: This course is designed for customers who are interested in learning SQL Server 2012 OR SQL Server 2014; it covers the new features in SQL Server 2014, but also the important capabilities across the SQL Server data platform.

Who Should Attend

This course is intended for database professionals who need to create and support a data warehousing solution. Primary responsibilities include:
- Implementing a data warehouse.
- Developing SSIS packages for data extraction, transformation, and loading.
- Enforcing data integrity by using Master Data Services.
- Cleansing data by using Data Quality Services.

Course Objectives

After completing this course, students will be able to:
- Describe data warehouse concepts and architecture considerations
- Select an appropriate hardware platform for a data warehouse
- Design and implement a data warehouse
- Implement Data Flow in an SSIS Package
- Implement Control Flow in an SSIS Package
- Debug and Troubleshoot SSIS packages
- Implement an ETL solution that supports incremental data extraction
- Implement an ETL solution that supports incremental data loading
- Implement data cleansing by using Microsoft Data Quality Services
- Implement Master Data Services to enforce data integrity
- Extend SSIS with custom scripts and components
- Deploy and Configure SSIS packages
- Describe how BI solutions can consume data from the data warehouse

Course Outline

1. Introduction to Data Warehousing
   - Overview of Data Warehousing
   - Considerations for a Data Warehouse Solution
   - Lab: Exploring a Data Warehousing Solution
   - Exploring Data Sources
   - Exploring and ETL Process
   - Exploring a Data Warehouse

2. Planning Data Warehouse Infrastructure
   - Considerations for Data Warehouse Infrastructure
   - Planning Data Warehouse Hardware
   - Lab: Planning Data Warehouse Infrastructure
   - Planning Data Warehouse Hardware
3 Designing and Implementing a Data Warehouse

Data Warehouse Design Overview
Designing Dimension Tables
Designing Fact Tables
Physical Design for a Data Warehouse
Lab: Implementing a Data Warehouse
Implement a Star Schema
Implement a Snowflake Schema
Implement a Time Dimension

4 Creating an ETL Solution with SSIS

Introduction to ETL with SSIS
Exploring Data Sources
Implementing Data Flow
Lab: Implementing Data Flow in an SSIS Package
Exploring Data Sources
Transferring Data by Using a Data Flow Task
Using Transformations in a Data Flow

5 Implementing Control Flow in an SSIS Package

Introduction to Control Flow
Creating Dynamic Packages
Using Containers
Managing Consistency
Lab: Implementing Control Flow in an SSIS Package
Using Tasks and Precedence in a Control Flow
Using Variables and Parameters
Using Containers
Lab: Using Transactions and Checkpoints
Using Transactions
Using Checkpoints

6 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
Debugging an SSIS Package
Logging SSIS Package Execution
Implementing an Event Handler
Handling Errors in a Data Flow

7 Implementing a Data Extraction Solution

Planning Data Extraction
Extracting Modified Data
Lab: Extracting Modified Data
Using a Datetime Column
Using Change Data Capture
Using the CDC Control Task
Using Change Tracking
8 Loading Data into a Data Warehouse

Planning Data Loads
Using SSIS for Incremental Loads
Using Transact-SQL Loading Techniques
Lab : Loading a Data Warehouse
Loading Data from CDC Output Tables
Using a Lookup Transformation to Insert or Update Dimension Data
Implementing a Slowly Changing Dimension
Using the MERGE Statement

9 Enforcing Data Quality

Introduction to Data Quality
Using Data Quality Services to Cleanse Data
Using Data Quality Services to Cleanse Data
Lab : Cleansing Data
Creating a DQS Knowledge Base
Using a DQS Project to Cleanse Data
Using DQS in an SSIS Package

10 Master Data Services

Introduction to Master Data Services
Implementing a Master Data Services Model
Managing Master Data
Creating a Master Data Hub
Lab : Implementing Master Data Services
Creating a Master Data Services Model
Using the Master Data Services Add-in for Excel
Enforcing Business Rules
Loading Data Into a Model
Consuming Master Data Services Data

11 Extending SQL Server Integration Services

Using Scripts in SSIS
Using Custom Components in SSIS
Lab : Using Custom Scripts
Using a Script Task

12 Deploying and Configuring SSIS Packages

Overview of SSIS Deployment
Deploying SSIS Projects
Planning SSIS Package Execution
Lab : Deploying and Configuring SSIS Packages
Creating an SSIS Catalog
Deploying an SSIS Project
Running an SSIS Package in SQL Server Management Studio
Scheduling SSIS Packages with SQL Server Agent
13 Consuming Data in a Data Warehouse

Introduction to Business Intelligence
Enterprise Business Intelligence
Self-Service BI and Big Data
Lab : Using a Data Warehouse
Exploring an Enterprise BI Solution
Exploring a Self-Service BI Solution