MOC 10777A: Implementing a Data Warehouse with Microsoft SQL Server 2012

Course Overview

This course focuses on teaching individuals how to create a data warehouse with SQL Server 2012, implement ETL with SQL Server Integration Services, and validate and cleanse data with SQL Server Data Quality Services and SQL Server Master Data Services.

Course Introduction

Module 01 - Introduction to Data Warehousing
Lesson 1: Overview of Data Warehousing
The Business Problem
What Is a Data Warehouse?
Data Warehouse Architectures
Components of a Data Warehousing Solution
Data Warehousing Projects
Data Warehousing Project Roles
SQL Server As a Data Warehousing Platform
Lesson 2: Considerations for a Data Warehouse Solution
Data Warehouse Database and Storage
Data Sources
Extract, Transform, and Load Processes
Data Quality and Master Data Management
Module 01 Review

Module 02 - Data Warehouse Hardware
Lesson 1: Considerations for Building a Data Warehouse
Data Warehouse Workloads
Data Warehouse System Architecture
Options for Implementing a Data Warehouse
Lesson 2: Data Warehouse Reference Architectures and Appliances
Fast Track Data Warehouse
Data Warehouse Appliances
Parallel Data Warehouse Appliances
Module 02 Review

Module 03 - Designing and Implementing a Data Warehouse
Lesson 1: Logical Design for a Data Warehouse
Introduction to Dimensional Modeling
Star Schemas
Considerations for Dimension Tables
Considerations for Fact Tables
Snowflake Schemas
Time Dimensions
Demo - Implementing a Data Warehouse

**Lesson 2: Physical Design for a Data Warehouse**
Physical Data Placement
Indexing
Partitioning
Data Compression

Module 03 Review

**Module 04 - Creating an ETL Solution with SSIS**
1h 33m

**Lesson 1: Introduction to ETL with SSIS**
Options for ETL
What Is SSIS?
SSIS Projects and Packages
The SSIS Design Environment
Upgrading from Previous Versions

**Lesson 2: Exploring Source Data**
Why Explore Source Data?
Examining Source Data
Demo - Exploring Source Data
Profiling Source Data
Demo - Using the Data Profiling Task

**Lesson 3: Implementing Data Flow**
Connection Managers
The Data Flow Task
Data Sources
Data Destinations
Data Transformations
Optimizing Data Flow Performance
Demo - Implementing a Data Flow
Module 04 Review

**Module 05 - Implementing Control Flow in an SSIS Package**
1h 56m

**Lesson 1: Introduction to Control Flow**
Control Flow Tasks
Precedence Constraints
Grouping and Annotations
Demo - Implementing Control Flow
Using Multiple Packages
Creating a Package Template

**Lesson 2: Creating Dynamic Packages**
Variables
Parameters
Expressions
Demo - Using Variables and Parameters

**Lesson 3: Using Containers**
Introduction to Containers
Sequence Containers
Demo - Using a Sequence Container
For Loop Containers
Demo - Using a For Loop Container
Foreach Loop Containers
Demo - Using a Foreach Loop Container

**Lesson 4: Managing Consistency**
Configuring Failure Behavior
Using Transactions
Demo - Using a Transaction
Using Checkpoints
Demo - Using a Checkpoint
Module 05 Review

**Module 06 - Debugging and Troubleshooting SSIS Packages**
1h 31m

**Lesson 1: Debugging an SSIS Package**
Overview of SSIS Debugging
Viewing Package Execution Events
Breakpoints
Variable and Status Windows
Data Viewers
Demo - Debugging a Package

**Lesson 2: Logging SSIS Package Events**
SSIS Log Providers
Log Events and Schema
Implementing SSIS Logging
ViewingLogged Events
Demo - Logging Package Execution

**Lesson 3: Handling Errors in an SSIS Package**
Introduction to Error Handling
Implementing Event Handlers
Handling Data Flow Errors
Demo - Handling Errors
Module 06 Review

**Module 07 - Implementing an Incremental ETL Process**
1h 51m

**Lesson 1: Introduction to Incremental ETL**
Overview of Data Warehouse Load Cycles
Considerations for Incremental ETL
Slowly Changing Dimensions

**Lesson 2: Extracting Modified Data**
Options for Extracting Modified Data
Extracting Rows Based on a Datetime Column
Demo - Using a Datetime Column
Change Data Capture
Demo - Using Change Data Capture
Extracting Data with Change Data Capture
The CDC Control Task and Data Flow Components
Change Tracking
Demo - Using Change Tracking
Extracting Data with Change Tracking

**Lesson 3: Loading Modified Data**
Options for Incrementally Loading Data
Using CDC Output Tables
Demo - Using CDC Output Tables
The Lookup Transformation
Demo - Using the Lookup Transformation
The Slowly Changing Dimension Transformation
The MERGE Statement
Module 07 Review

Module 08 - Incorporating Data from the Cloud into a Data Warehouse
Lesson 1: Overview of Cloud Data Sources
Cloud Data Scenarios
Microsoft Cloud Platform for Data
Cloud Data and Services in the BI Ecosystem

Lesson 2: SQL Azure
Getting Started with SQL Azure
Comparing SQL Azure with SQL Server
Topology of SQL Azure
Managing Firewall Settings
Connecting to SQL Azure
SQL Server Management Studio and SQL Azure
Using SQL Azure As a Data Source for a Data Warehouse

Lesson 3: The Windows Azure Marketplace DataMarket
What Is the Windows Azure Marketplace?
Windows Azure Marketplace DataMarket Data Scenarios
Acquiring and Viewing Data
The Windows Azure Marketplace DataMarket Add-in for Excel
Accessing the Windows Azure Marketplace DataMarket from Client Applications
Module 08 Review

Module 09 - Enforcing Data Quality
Lesson 1: Introduction to Data Quality
What Is Data Quality, and Why Do You Need It?
Data Quality Services Overview
What Is a Knowledge Base?
What Is a Domain?
What Is a Reference Data Service?
Creating a Knowledge Base
Demo - Creating a Knowledge Base

Lesson 2: Using Data Quality Services to Cleanse Data
Creating a Data Cleansing Project
Viewing Cleansed Data
Demo - Cleansing Data
Using the Data Cleansing Data Flow Transformation

Lesson 3: Using Data Quality Services to Match Data
Creating a Matching Policy
Creating a Data Matching Project
Viewing Data Matching Results
Demo - Matching Data
Module 09 Review
Module 10 - Using Master Data Services
Lesson 1: Introduction to Master Data Services
The Need for Master Data Management
What Is Master Data Services?
Master Data Services and Data Quality Services
Components of Master Data Services

Lesson 2: Implementing a Master Data Services Model
What Is a Master Data Services Model?
Creating a Model
Creating Entities and Attributes
Adding and Editing Members
Demo - Creating a Master Data Services Model
Editing a Model in Microsoft Excel
Demo - Editing a Model in Excel

Lesson 3: Managing Master Data
Hierarchies and Collections
Creating Derived Hierarchies
Creating Explicit Hierarchies
Creating Collections
Finding Duplicate Members
Validating Members with Business Rules

Lesson 4: Creating a Master Data Hub
Master Data Hub Architecture
Master Data Services Staging Tables
Staging and Importing Data
Consuming Master Data with Subscription Views

Module 10 Review

Module 11 - Extending SQL Server Integration Services
Lesson 1: Using Custom Components in SSIS
Introduction to Custom Components
Implementing a Custom Component
Installing and Using a Custom Component

Lesson 2: Using Scripts in SSIS
Introduction to Scripting in SSIS
Using the Control Flow Script Task
Demo - Implementing a Script Task
Using the Data Flow Script Component
Demo - Using a Script Component in a Data Flow

Module 11 Review

Module 12 - Deploying and Configuring SSIS Packages
Lesson 1: Overview of SSIS Deployment
SSIS Deployment Models
Package Deployment Model
Project Deployment Model
Deployment Model Comparison

Lesson 2: Deploying SSIS Projects
Creating an SSIS Catalog
Environments and Variables

Module 12 Review
Lesson 3: Planning SSIS Package Execution
Options for Running SSIS packages
Scheduling the ETL Process
Configuring Execution Context
Where to Handle Notifications
Where to Handle Logging
Combining SSIS Tasks with Other Tasks
Implementing SSIS Agent Jobs and Schedules
Module 12 Review

Module 13 - Consuming Data in a Data Warehouse
Lesson 1: Introduction to Business Intelligence
The Data Warehouse As a Platform for Business Intelligence
Reporting
Data Analysis
Lesson 2: Introduction to Reporting
Reporting Services
Creating Reporting Services Reports
Power View
Lesson 3: Introduction to Data Analysis
Analysis Services
Analysis Services Semantic Models
Using Excel As a Data Analysis Tool
Module 13 Review
Course Closure

Total Duration: 15hrs 12m