

20463 - Implementing a Data Warehouse with Microsoft SQL Server

Duration: 5 days

Overview:

This Microsoft 20463 training 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. This is a Microsoft Official Course (MOC).

Target Audience:

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.

Pre-requisites:

Before attending this course, students must have:

- At least 2 years' experience of working with relational databases, including:
- Designing a normalised 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.

Module 1: Introduction to Data Warehousing

Lessons

- 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

Module 2: Planning Data Warehouse Infrastructure

Lessons

- Considerations for Data Warehouse Infrastructure
- Planning Data Warehouse Hardware

Lab : Planning Data Warehouse Infrastructure

- Planning Data Warehouse Hardware

Module 3: Designing and Implementing a Data Warehouse

Lessons

- 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

Module 4: Creating an ETL Solution with SSIS

Lessons

- 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

Module 5: Implementing Control Flow in an SSIS Package

Lessons

- 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

Module 6: 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

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

Module 7: Implementing a Data Extraction Solution

Lessons

- 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

At Course Completion:

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.

Module 8: Loading Data into a Data Warehouse

Lessons

- 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

Module 9: Enforcing Data Quality

Lessons

- 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

Module 10: Master Data Services

Lessons

- 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

Module 11: Extending SQL Server Integration Services

Lessons

- Using Scripts in SSIS
- Using Custom Components in SSIS

Lab : Using Custom Scripts

- Using a Script Task

Module 12: Deploying and Configuring SSIS Packages

Lessons

- 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

Module 13: Consuming Data in a Data Warehouse

Lessons

- 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