

20767: Implementing a SQL Data Warehouse (SQL Server 2016)

Course Details

Course Outline

1. Introduction to Data Warehousing

- Overview of Data Warehousing
- Considerations for a Data Warehouse Solution
- **Lab : Exploring a Data Warehouse Solution**
- Exploring data sources
- Exploring an 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

- Designing dimension tables
- Designing fact tables
- Physical Design for a Data Warehouse
- **Lab : Implementing a Data Warehouse Schema**
- Implementing a star schema
- Implementing a snowflake schema
- Implementing a time dimension table

4. Columnstore Indexes

- Introduction to Columnstore Indexes
- Creating Columnstore Indexes
- Working with Columnstore Indexes
- **Lab : Using Columnstore Indexes**
- Create a Columnstore index on the FactProductInventory table
- Create a Columnstore index on the FactInternetSales table
- Create a memory optimized Columnstore table

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 SQ Data Warehouse
- Copying data with the Azure data factory
- **Lab : Implementing an Azure SQL Data Warehouse**
- Create an Azure SQL data warehouse database
- Migrate to an Azure SQL Data warehouse database
- Copy data with the Azure data factory

6. Creating an ETL Solution

- Introduction to ETL with SSIS
- Exploring Source Data
- Implementing Data Flow
- **Lab : Implementing Data Flow in an SSIS Package**
- Exploring source data
- Transferring data by using a data row task
- Using transformation components in a data row

7. 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

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**

- Debugging an SSIS package
- Logging SSIS package execution
- Implementing an event handler
- Handling errors in data flow

9. Implementing a Data Extraction Solution

- Introduction to Incremental ETL
- Extracting Modified Data
- Loading modified data
- Temporal Tables
- **Lab : Extracting Modified Data**
- Using a datetime column to incrementally extract data
- Using change data capture
- Using the CDC control task
- Using change tracking
- **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

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**
- Creating a DQS knowledge base
- Using a DQS project to cleanse data
- Using DQS in an SSIS package
- **Lab : De-duplicating Data**
- Creating a matching policy
- Using a DS project to match data

11. Using Master Data Services

- Introduction to Master Data Services
- Implementing a Master Data Services Model

- Hierarchies and collections
- 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

12. Extending SQL Server Integration Services (SSIS)

- Using scripting in SSIS
- Using custom components in SSIS
- **Lab : Using scripts**
- Using a script task

13. 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
- Creating environments for an SSIS solution
- Running an SSIS package in SQL server management studio
- Scheduling SSIS packages with SQL server agent

14. Consuming Data in a Data Warehouse

- Introduction to Business Intelligence
- An Introduction to Data Analysis
- Introduction to reporting
- Analyzing Data with Azure SQL Data Warehouse
- **Lab : Using a data warehouse**
- Exploring a reporting services report
- Exploring a PowerPivot workbook
- Exploring a power view report