MS 20767 C: Implementing A SQL Data Warehouse

Days: 5

Prerequisites: In addition to their professional experience, students who attend this training should already have the following technical knowledge:

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

Audience: 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.

Description: This 5-day instructor led 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.

OUTLINE:

MODULE 1: INTRODUCTION TO DATA WAREHOUSING

Describe data warehouse concepts and architecture considerations.

LESSONS

- Overview of Data Warehousing
- Considerations for a Data Warehouse Solution

LAB: EXPLORING A DATA WAREHOUSE SOLUTION

After completing this module, you will be able to:

- Describe the key elements of a data warehousing solution
- Describe the key considerations for a data warehousing solution

MODULE 2: PLANNING DATA WAREHOUSE INFRASTRUCTURE

This module describes the main hardware considerations for building a data warehouse.

LESSONS

- Considerations for Building a Data Warehouse
- Data Warehouse Reference Architectures and Appliances

LAB: PLANNING DATA WAREHOUSE INFRASTRUCTURE

After completing this module, you will be able to:

- Describe the main hardware considerations for building a data warehouse
- Explain how to use reference architectures and data warehouse appliances to create a data warehouse

MS 20767 C: Implementing A SQL

Data Warehouse

MODULE 3: DESIGNING AND IMPLEMENTING A DATA WAREHOUSE

This module describes how you go about designing and implementing a schema for a data warehouse.

LESSONS

- Logical Design for a Data Warehouse
- Physical Design for a Data Warehouse

LAB: IMPLEMENTING A DATA WAREHOUSE SCHEMA

After completing this module, you will be able to:

- Implement a logical design for a data warehouse
- Implement a physical design for a data warehouse

MODULE 4: COLUMNSTORE INDEXES

This module introduces Columnstore Indexes.

LESSONS

- Introduction to Columnstore Indexes
- Creating Columnstore Indexes
- Working with Columnstore Indexes

LAB: USING COLUMNSTORE INDEXES

After completing this module, you will be able to:

- Create Columnstore indexes
- Work with Columnstore Indexes

MODULE 5: IMPLEMENTING AN AZURE SQL DATA WAREHOUSE

This module describes Azure SQL Data Warehouses and how to implement them.

LESSONS

- 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

LAB: IMPLEMENTING AN AZURE SQL DATA WAREHOUSE

After completing this module, you will be able to:

- Describe the advantages of Azure SQL Data Warehouse
- Implement an Azure SQL Data Warehouse
- Describe the considerations for developing an Azure SQL Data Warehouse
- Plan for migrating to Azure SQL Data Warehouse

MODULE 6: CREATING AN ETL SOLUTION

At the end of this module you will be able to implement data flow in a SSIS package.

LESSONS

- Introduction to ETL with SSIS
- Exploring Source Data
- Implementing Data Flow

LAB: IMPLEMENTING DATA FLOW IN AN SSIS PACKAGE

After completing this module, you will be able to:

- Describe ETL with SSIS
- Explore Source Data
- Implement a Data Flow

MS 20767 C: Implementing A SQL

Data Warehouse

MODULE 7: IMPLEMENTING CONTROL FLOW IN AN SSIS PACKAGE

This module describes implementing control flow in an SSIS package.

LESSONS

- Introduction to Control Flow
- Creating Dynamic Packages
- Using Containers

LAB: IMPLEMENTING CONTROL FLOW IN AN SSIS PACKAGE

LAB: USING TRANSACTIONS AND CHECKPOINTS

After completing this module, you will be able to:

- Describe control flow
- Create dynamic packages
- Use containers

MODULE 8: DEBUGGING AND TROUBLESHOOTING SSIS PACKAGES

This module describes how to debug and troubleshoot SSIS packages.

LESSONS

- Debugging an SSIS Package
- Logging SSIS Package Events
- Handling Errors in an SSIS Package

LAB: DEBUGGING AND TROUBLESHOOTING AN SSIS PACKAGE

After completing this module, you will be able to:

- Debug an SSIS package
- Log SSIS package events
- Handle errors in an SSIS package

MODULE 9: IMPLEMENTING AN INCREMENTAL ETL PROCESS

This module describes how to implement an SSIS solution that supports incremental DW loads and changing data.

LESSONS

- Introduction to Incremental ETL
- Extracting Modified Data
- Temporal Tables

LAB: EXTRACTING MODIFIED DATA

LAB: LOADING INCREMENTAL CHANGES

After completing this module, you will be able to:

- Describe incremental ETL
- Extract modified data
- Describe temporal tables

MODULE 10: ENFORCING DATA QUALITY

This module describes how to implement data cleansing by using Microsoft Data Quality services.

LESSONS

- 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

After completing this module, you will be able to:

- Describe data quality services
- Cleanse data using data quality services
- Match data using data quality services
- De-duplicate data using data quality services

MS 20767 C: Implementing A SQL

Data Warehouse

MODULE 11: USING MASTER DATA SERVICES

This module describes how to implement master data services to enforce data integrity at source.

LESSONS

- Master Data Services Concepts
- Implementing a Master Data Services Model
- Managing Master Data
- Creating a Master Data Hub

LAB: IMPLEMENTING MASTER DATA SERVICES

After completing this module, you will be able to:

- Describe the key concepts of master data services
- Implement a master data service model
- Manage master data
- Create a master data hub

MODULE 12: EXTENDING SQL SERVER INTEGRATION SERVICES (SSIS)

This module describes how to extend SSIS with custom scripts and components.

LESSONS

- Using Custom Components in SSIS
- Using Scripting in SSIS

LAB: USING SCRIPTS AND CUSTOM COMPONENTS

After completing this module, you will be able to:

- Use custom components in SSIS
- Use scripting in SSIS

MODULE 13: DEPLOYING AND CONFIGURING SSIS PACKAGES

This module describes how to deploy and configure SSIS packages.

LESSONS

- Overview of SSIS Deployment
- Deploying SSIS Projects
- Planning SSIS Package Execution

LAB: DEPLOYING AND CONFIGURING SSIS PACKAGES

After completing this module, you will be able to:

- Describe an SSIS deployment
- Deploy an SSIS package
- Plan SSIS package execution

MODULE 14: CONSUMING DATA IN A DATA WAREHOUSE

This module describes how to debug and troubleshoot SSIS packages.

LESSONS

- Introduction to Business Intelligence
- Introduction to Reporting
- An Introduction to Data Analysis
- Analyzing Data with Azure SQL Data Warehouse

LAB: USING BUSINESS INTELLIGENCE TOOLS

After completing this module, you will be able to:

- Describe at a high level business intelligence
- Show an understanding of reporting
- Show an understanding of data analysis
- Analyze data with Azure SQL data warehouse