Implementing a SQL Data Warehouse - MOC On Demand (MS-20767)

Modality: On Demand

Duration: 2 Days

SATV Value: 2

This course prepares you for the 70-767 Exam leading to 70-767 Certification. This course does not include the Official Exam Voucher, however, you can request to purchase the Official Exam Voucher separately.

About this course:

This course is Microsoft Official On-Demand course accessible for 90 days from the date of course request, if you have annual subscription, or course purchase individually. Course access will expire after 90 days of course enrollment.

This course provides students with the knowledge and skills to provision a Microsoft SQL Server database. The course covers SQL Server provision both on-premise and in Azure, and covers installing from new and migrating from an existing install.

This course also prepares the students for the Microsoft 70-767: Implementing a Data Warehouse using SQL certification exam.

The average salary for a Database Administrator is **$71,429** per year.

Course Objective:

After completing this course, students will be able to:

- Describe the key elements of a data warehousing solution
- Describe the main hardware considerations for building a data warehouse
- Implement a logical design for a data warehouse
- Implement a physical design for a data warehouse
- Create column store indexes
- Implementing an Azure SQL Data Warehouse
- Describe the key features of SSIS
- Implement a data flow by using SSIS
- Implement control flow by using tasks and precedence constraints
- Create dynamic packages that include variables and parameters
- Debug SSIS packages
- Describe the considerations for implement an ETL solution
- Implement Data Quality Services
- Implement a Master Data Services model
- Describe how you can use custom components to extend SSIS
- Deploy SSIS projects

- Describe BI and common BI scenarios

Audience:

This course is intended for:

- Database professionals who need to fulfill 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.

Prerequisites:

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

- Basic knowledge of the Microsoft Windows operating system and its core functionality.
- Working knowledge of relational databases.
- Some experience with database design.

Course Outline:

Module 1: Introduction to Data Warehousing

This module describes data warehouse concepts and architecture consideration.

Lessons

- 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

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 data warehouse infrastructure.

- Planning data warehouse hardware.

Lab : Planning Data Warehouse Infrastructure

- Planning data warehouse hardware

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

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

- 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

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

- Create a Columnstore index on the FactProductInventory table
- Create a Columnstore index on the FactInternetSales table

- Create a memory optimized Columnstore table

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
- 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

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

- Exploring source data
- Transferring data by using a data row task
- Using transformation components in a data row

After completing this module, you will be able to:

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

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
- 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

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

- Debugging an SSIS package
- Logging SSIS package execution

- Implementing an event handler
- Handling errors in data flow

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 a Data Extraction Solution

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
- 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

After completing this module, you will be able to:

- Describe incremental ETL
- Extract modified data
- Load 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

- 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

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

Module 11: Using Master Data Services

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

Lessons

- 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

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 scripting in SSIS
- Using custom components in SSIS

Lab : Using scripts

- Using a script task

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

- 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

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
- 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

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