

55315 - Introduction to SQL Databases

Course outline

Module 1: Introduction to databases

This module introduces key database concepts in the context of SQL Server 2016.

Lessons

- Introduction to relational databases
- Other types of database
- Data analysis
- Database languages in SQL Server

Lab : Exploring and querying SQL Server databases

After completing this module, you will be able to:

- Describe what a database is
- Understand basic relational aspects
- Describe database languages used in SQL Server
- Describe data analytics

Module 2: Data Modelling

This module describes data modelling techniques.

Lessons

- Data modelling
- ANSI/SPARC database model
- Entity relationship modelling

Lab : Identify components in entity relationship modelling

After completing this module, you will be able to:

- Understand the common data modelling techniques
- Describe the ANSI/SPARC database model
- Describe entity relationship modelling

Module 3: Normalization

This module describes normalization and denormalization techniques.

Lessons

- Fundamentals of Normalization
- Normal form
- Denormalization

Lab : Normalizing data

After completing this module, you will be able to:

- Describe normalization benefits and notation
- Describe important normalization terms
- Describe the normalization levels
- Describe the role of denormalization

Module 4: Relationships

This module describes relationship types and effects in database design.

Lessons

- Introduction to relationships
- Planning referential integrity

Lab : Planning and implementing referential integrity

After completing this module, you will be able to:

- Describe relationship types
- Describe the use, types, and effects of referential integrity

Module 5: Performance

This module introduces the effects of database design on performance.

Lessons

- Indexing
- Query performance

- Concurrency

Lab : Performance issues

After completing this module, you will be able to:

- Discuss the performance effects of indexing
- Describe the performance effects of join and search types
- Describe the performance effects of concurrency

Module 6: Database Objects

This module introduces commonly used database objects.

Lessons

- Tables
- Views
- Stored procedures, triggers and functions

Lab : Using SQL server

After completing this module, you will be able to:

- Describe the use of tables in SQL Server
- Describe the use of views in SQL Server
- Describe the use of stored procedures in SQL Server
- Describe other database objects commonly used in SQL Server