

## [MS10985A]: Introduction to SQL Databases

Length	: 3 Days
Audience(s)	: IT Professionals
Level	: 300
Technology	: Microsoft SQL Server
Delivery Method	: Instructor-led (Classroom)

### Course Overview

This three-day instructor-led course is aimed at people looking to move into a database professional role or whose job role is expanding to encompass database elements. The course describes fundamental database concepts including database types, database languages, and database designs.

### Audience Profile

The primary audience for this course is people who are moving into a database role, or whose role has expanded to include database technologies.

### At Course Completion

- Describe key database concepts in the context of SQL Server 2016
- Describe database languages used in SQL Server 2016
- Describe data modelling techniques
- Describe normalization and denormalization techniques
- Describe relationship types and effects in database design
- Describe the effects of database design on performance
- Describe commonly used database objects

### Pre-Requisites

This is a foundation level course and therefore only requires general computer literacy.

### 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

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## Lab: Querying SQL Server

- Describe what a database is
- Understand basic relational aspects
- Describe database languages used in SQL Server 2016
- Describe data analytics
- Describe database languages used in SQL Server 2016

## Module 2: Data Modelling

This module describes data modelling techniques.

### Lessons

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

## Lab: 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

- Why normalize data?
- Normalization terms
- Levels of normalization
- Denormalization

## Lab: Normalizing raw 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

- Schema mapping
- Referential integrity

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## Lab: Designing relationships

### 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: Query performance

### 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
- Other database objects

## Lab: Using SQL Server in a hybrid cloud

### After completing this module, you will be able to:

- Describe the use of tables in SQL Server 2016
- Describe the use of views in SQL Server 2016
- Describe the use of stored procedures in SQL Server 2016
- Describe other database objects commonly used in SQL Server 2016

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