



## Introduction to SQL Databases

### Course 10985B: 2 days; Instructor-Led

#### Introduction

This two-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.

#### At Course Completion

After completing this course, students will be able to:

- 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

#### Audience

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

#### Prerequisites

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

##### Lab : Querying SQL Server

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 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

**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