Introduction to SQL Databases

Duration: 3 Days      Course Code: M10985

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.

Target 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.

Objectives:
- After completing this course, students will be able to:
  - Describe normalization and denormalization techniques
  - Describe key database concepts in the context of SQL Server 2016
  - Describe database languages used in SQL Server 2016
  - Describe data modelling techniques
  - Describe relationship types and effects in database design
  - Describe the effects of database design on performance
  - Describe commonly used database objects

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

Follow-on-Courses:
Querying Data with Transact-SQL
Content:

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
- Data modelling
- ANSI/SPARC database model
- Entity relationship modelling
- Fundamentals of Normalization
- Normal form
- Denormalization
- Introduction to relationships
- Planning referential integrity
- Indexing
- Query performance
- Concurrency
- Tables
- Views
- Stored procedures, triggers and functions

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
- Understand the common data modelling techniques
- Describe the ANSI/SPARC database model
- Describe entity relationship modelling
- Describe normalization benefits and notation
- Describe important normalization terms
- Describe the normalization levels
- Describe the role of denormalization
- Describe relationship types
- Describe the use, types, and effects of referential integrity
- Discuss the performance effects of indexing
- Discuss the performance effects of join and search types
- Describe the performance effects of concurrency
- 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

Module 2: Data Modelling

Lab : Normalizing data

Module 3: Normalization
This module describes normalization and denormalization techniques.

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- Introduction to relational databases
- Other types of database
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- Data modelling
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- Fundamentals of Normalization
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- Denormalization
- Introduction to relationships
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Lab : Performance issues

Module 5: Performance
This module introduces the effects of database design on performance.

Lessons
- Introduction to relational databases
- Other types of database
- Data analysis
- Database languages in SQL Server
- Data modelling
- ANSI/SPARC database model
- Entity relationship modelling
- Fundamentals of Normalization
- Normal form
- Denormalization
- Introduction to relationships
- Planning referential integrity
- Indexing
- Query performance
- Concurrency
- Tables
- Views
- Stored procedures, triggers and functions
This module describes data modelling techniques.

Lessons
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Lab: Identify components in entity relationship modelling

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

Module 4: Relationships

This module describes relationship types and effects in database design.

Lessons
- Introduction to relational databases
- Other types of database
- Data analysis
- Database languages in SQL Server
- Data modelling
- ANSI/SPARC database model
- Entity relationship modelling
- Fundamentals of Normalization
- Normal form
- Denormalization
- Introduction to relationships
- Planning referential integrity
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Lab: Planning and implementing referential integrity

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- Describe relationship types
- Describe the use, types, and effects of referential integrity
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- Describe the use of tables in SQL Server
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- Describe the use of stored procedures in SQL Server
- Describe other database objects commonly used in SQL Server

Module 6: Database Objects

This module introduces commonly used database objects.

Lessons
- Introduction to relational databases
- Other types of database
- Data analysis
- Database languages in SQL Server
- Data modelling
- ANSI/SPARC database model
- Entity relationship modelling
- Fundamentals of Normalization
- Normal form
- Denormalization
- Introduction to relationships
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Lab: Using SQL server

After completing this module, you will be able to:
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- Describe the performance effects of concurrency
- 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
Further Information:
For More information, or to book your course, please call us on 0800/84.009
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