

Core & Advanced SQL Server Syllabus

Overview:

Microsoft SQL Server is one the most popular Relational Database Management System (RDBMS) used in Microsoft universe. It can be used for data storage as well as for data retrieval for applications which can be either on desktop or Web/Browse.

Course Objectives:

Learn about SQL – Structured Query Language

- Build database using Data Definition Language Statements Perform basic CRUD operations using Data Manipulation Language statements like Insert, Update and Delete Write and call Stored Procedures and Functions stored in database.
- Write and manage database triggers, cursors and Index.

Module 1:- Introduction to Basic Database Concepts

In this module we learn about Basic concepts and advantages of DBMS and limitations of file management system , and also about Three data base models

What is Data, Field, Record and database?

- ❖ Limitations of File Management System.
- ❖ Basic Concepts of Advantages of DBMS.
- ❖ Exploring Relational DBMS
- ❖ Understanding Client and Server

Module 2: E-R Modeling and Diagram

In this module we learn about entity, attributes and relationship , identify the entities and attributes How to draw a E-R diagram and translating the E-R diagram in relation schema.

- ❖ Analyzing the Requirement
- ❖ Identify Entities and their Relationships
- ❖ Drawing E-R Diagram
- ❖ Conversion of E.R. Diagrams into Tables

Module 3: Normalization :

In this module we learn about what is normalization, types of normalization, data before and after normalization, benefits of normalization.

- First Normal Form
- Second Normal Form
- Third Normal Form Practically Normalizing Tables

Module 4: Introduction to SQL Server

In this module we learn about SQL Server, history of sql server ,types of systemdatabases, communication between frontend and backend and sql server editions.

- What is SQL Server Version history and different editions
- Basic Features Components and Tools
- Starting and Stopping SQL Server Instances / Services
- Introduction to Management Studio
- Types of System Databases in SQL

Module 5: Introduction to SQL

In this module we learn about types of sql statements, databases in sql server, how to create a database, datatypes in sql server, and about DDL Statements. Basics of SQL Types of SQL Statements

- ❖ DDL, DML, DQL, DCL and TCL
- ❖ Create Database using Management Studio
- ❖ Datatypes in SQL Server

- ❖ Exploring DDL Statements on Table using Management Studio

Module 6: DDL and DML Statements

In this module we learn about how to create a table, alter and drop a table ,andabout DML statements ,like insert update and delete statements.

- ❖ Why write statements in Frontends?
- ❖ Create, Alter and Drop Table Insert,
- ❖ Update and Delete Statement Truncate Statement

Module 7: Working with Queries (DQL)

In this module we learn about select statement, top, distinct string and arithmeticexpressions, Sorting the data and about sub queries and where clause(condition).

- ❖ Understanding Select Statement
- ❖ Usage of Top, Distinct, Null etc...keywords
- ❖ Using String and Arithmetic Expressions
- ❖ Exploring Where Clause with Operators
- ❖ Using Advanced Operators
- ❖ Sorting data using Order By clause
- ❖ Working with basic of Sub Queries

Module 8: Aggregate Functions

In this module we learn about how to use aggregate functions like sum,min,max,avg ,count what is difference between having and where clause,group by clause rollup and cube operator.

Using functions in Queries

Count, Sum, Min, Max, Avg Group By and Having Clause

Module 9: Joins and Set Operations

In this module we will know about joins and types of joins how to join the tablesand about

Sub queries ,types of operators like union and how to add the tables and relationship between them.

Module 10: Implementation of Data integrity

In this module , we will learn correctness of data and types of integrity and types of constraints.

- ❖ Entity integrity
- ❖ Domain integrity
- ❖ Referential integrity
- ❖ Types of constraints

Module 11: Working with Constraints

In this module, we will learn about how to create a constraint, types of constraints, and difference between unique, not null and primary key constraints.

- ❖ Unique
- ❖ Not NULL
- ❖ Primary Key
- ❖ Foreign key
- ❖ Default

Module 12: Implementing Views

- ❖ Introduction & Advantages of Views
- ❖ Creating, Altering, Dropping Views

Advanced SQL Topics

Module 13: Working with Indexes

In this module, how to create a index, advantages and disadvantages of index, and types of index and dropping index, and also about index structure.

- ❖ Creating and Dropping Indexes

Module 14: Writing Transact-SQL (T-SQL)

In this module, what is script and what is batch ,variables and if else statements and working with temporary tables, and checking with the existence of database objects.

- ❖ What is T-SQL?
- ❖ Working with Temp tables

Module 15: Working with Stored Procedures and Functions

In this module, we will learn how to create a stored procedure and difference between stored procedure and table ,advantages of procedures and about types of parameters.

- ❖ Introduction to stored procedures
- ❖ Benefits of Stored Procedures
- ❖ Creating, Executing Modifying, Dropping
- ❖ Input–Output and Optional Parameters
- ❖ System defined SP's and Functions.
- ❖ User defined Functions

Module 16: Implementing Triggers

In this module, we will learn about what is trigger and how to create a trigger, types of triggers

How to use a rollback transaction.

- ❖ Introduction to triggers
- ❖ Constraints vs Triggers
- ❖ Creating, Altering, Dropping triggers
- ❖ for/after/instead of triggers
- ❖ Using Rollback Transaction

Module 17 :Backup and Restore

In this module, how to backup database and how to restore a database and how to generate a sql script, and executing a sql script and how to attach and deattacha database.

- ❖ Restoring database using backup
- ❖ Attaching and Detaching of database