Syllabus 2026

MS-SQL Database

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This SQL Database Syllabus is designed to provide complete practical knowledge of database management and sql queries. Students will learn how to write sql queries for the applications and build successful career in DBMS.

PROGRAM IS BEST SUITED FOR

Entrepreneurs

College Students

Marketing Professionals

Job Seekers

WHY YOU SHOULD LEARN
MS-SQL DATABASE

Here is why you should learn SQL Database:

- 1. Universal and Standardized Language: SQL has been the standard language for relational databases for decades, and its core syntax remains largely unchanged.

- 2. High Career Demand: Proficiency in SQL is a highly sought-after skill for numerous job roles. Careers such as data analysts, software engineers, database administrators, business intelligence specialists, and data scientists all require SQL knowledge for daily operations.

- 3. Effective Data Management: SQL is designed to handle vast amounts of structured data efficiently.

- 4. Easy to Learn: Compared to many other programming languages, SQL has a relatively gentle learning curve. Its command structure uses plain English words, making it accessible for beginners without a prior computer science background.

- 5. Integration with Other Tools: SQL works seamlessly with most programming languages (Python, Java, etc.) and is the foundational language for many data visualization and big data tools, such as Tableau, Google Data Studio, and Apache Hive.

SQL COURSE CONTENT

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 3 data base models.

- What is Data, Field, Record and database?
- Limitations of File Management System.
- Basic Concepts of Advantages of DBMS.
- Levels of Abstraction, Database Models.
- 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 system databases, communication between frontend and back-end 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 and about 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 arithmetic expressions, 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, mean, max, avg what is difference between having and where clause, group by clause rollup and cube operator.

- Using functions in Queries
- Using predefined functions
- Count, Sum, Min, Max, Avg Group By and Having Clause
- Using Group By with Rollup and Cube

Module 9: 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 10: Joins and Set Operations

In this module we will know about joins and types of joins how to join the tables and about Sub queries, types of operators like union ,intersect and except and how to add the tables and relationship between them.

- Introduction to Joins Cross Joins
- Inner Join
- Outer Join
- Self Join
- Co-related Sub Queries
- Set Operations using Unions, Intersect and Except

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
- Default Check Foreign Key

Certificate

Upon completing this Certification course, you will receive a program completion certificate from Tech Engineer, Mohali (Pb). This certificate will testify to your skills as an expert in the completed course.

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