

# MySQL



## e-Learning Course

Zetlan Technologies

Unlock the power of data management  
with our MySQL!

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# COURSE MODULES

## Module 1: Introduction to MySQL

- What is MySQL?
- Installing MySQL (Windows, macOS, Linux)
- MySQL Workbench & Command-Line Interface
- Basic MySQL Commands

## Module 2: Database Basics

- Understanding Databases & Tables
- Data Types in MySQL
- Creating, Altering, and Dropping Databases
- Creating, Altering, and Dropping Tables

## Module 3: Data Manipulation Language (DML)

- Inserting Data (INSERT)
- Updating Data (UPDATE)
- Deleting Data (DELETE)
- Selecting Data (SELECT)

## Module 4: Filtering & Sorting Data

- Using WHERE Clause
- Logical Operators (AND, OR, NOT)
- Sorting Results (ORDER BY)
- Limiting Results (LIMIT)

## Module 5: Aggregate Functions & Grouping

- Using COUNT(), SUM(), AVG(), MIN(), MAX()
- Grouping Data with GROUP BY
- Filtering Groups with HAVING

## Module 6: SQL Joins

- Understanding Joins
- Inner Join (INNER JOIN)
- Left Join (LEFT JOIN)
- Right Join (RIGHT JOIN)
- Full Join (FULL JOIN)
- Self Join
- Cross Join



## **Module 7: Subqueries & Derived Tables**

- What is a Subquery?
- Using Subqueries in SELECT, FROM, WHERE
- Correlated Subqueries
- Common Table Expressions (CTEs)

## **Module 8: Data Constraints & Integrity**

- Primary Key (PRIMARY KEY)
- Foreign Key (FOREIGN KEY)
- Unique Constraint (UNIQUE)
- Not Null Constraint (NOT NULL)
- Default Values (DEFAULT)
- Check Constraint (CHECK)

## **Module 9: Stored Procedures & Functions**

- Introduction to Stored Procedures
- Creating & Executing Stored Procedures
- Creating & Using Functions
- Parameters in Stored Procedures

## **Module 10: Triggers & Events**

- Understanding Triggers
- Creating & Managing Triggers
- MySQL Events & Scheduled Tasks

## **Module 11: Transactions & Concurrency Control**

- What is a Transaction?
- Using COMMIT & ROLLBACK
- Savepoints (SAVEPOINT)
- Isolation Levels (READ COMMITTED, SERIALIZABLE, etc.)
- Handling Deadlocks

## **Module 12: Indexing & Performance Optimization**

- What is an Index?
- Types of Indexes (PRIMARY, UNIQUE, FULLTEXT)
- Using EXPLAIN for Query Optimization
- Performance Tuning & Caching

## **Module 13: MySQL Security**

- Managing User Accounts & Permissions
- Securing Connections with SSL
- Preventing SQL Injection
- Backup & Recovery Strategies

## **Module 14: MySQL and Programming Languages**

- Connecting MySQL with Python
- Connecting MySQL with PHP
- Connecting MySQL with Java

## **Module 15: Advanced Topics & Real-World Applications**

- Partitioning & Sharding
- Working with JSON Data
- Full-Text Search
- MySQL with Cloud (AWS RDS, Google Cloud SQL)

