

MySQL Training: Stored Procedures and Triggers

Introduction

Overview of MySQL.

Course objectives: optimize stored procedures, explore alternatives, and master advanced data processing functions.

Module 1: Review of SQL Query Writing

- Write simple and complex SQL queries.
- Use WHERE, GROUP BY, HAVING, and ORDER BY clauses.
- Joins (INNER, LEFT, RIGHT, FULL) to combine tables.
- Use subqueries and nested queries.

Module 2: Optimization and Alternatives to Stored Procedures

- What is a stored procedure and when to use it?
- Advantages and limitations of stored procedures.
- Optimization techniques: indexing, reducing nested queries, managing transactions.
- Alternatives: materialized views, prepared statements, and application-level solutions.

Module 3: Best Practices and Data Management in MySQL

- Table structuring, efficient indexing, and performance diagnostics.
- Query optimization: specific SELECTs, pagination, and join techniques.
- Text management: CONCAT(), SUBSTRING(), REPLACE(), cleaning and formatting.
- Number processing: SUM(), AVG(), ROUND(), MOD(), statistical and financial calculations.

Module 4: Advanced Data Comparison and Manipulation Functions

- Date comparison functions: NOW(), CURDATE(), DATEDIFF(), TIMESTAMPDIFF().
- Combined processing of text and numeric data in MySQL.
- Use of regular expressions for advanced data cleaning.

Module 5: Using Cursors and Looping Techniques

- Definition, syntax, and usage context of cursors in MySQL.
- Practical examples: iterating through records and performing repetitive operations.

Conclusion and Final Case Study

- Summary of key concepts.
- Integrated case study: implementing optimization, advanced functions, and cursors.