

Mastering Stored Procedures in Microsoft SQL Server

Course Description

This course provides a thorough exploration of stored procedures in MS SQL Server, guiding learners from the basics to advanced integrations. Through hands-on labs and real-world scenarios, attendees will gain the skills necessary to design efficient, secure, and robust stored procedures suitable for professional SQL Server environments.

Duration : 3 Days

Prerequisites

- Basic knowledge of relational databases
- Familiarity with SQL syntax and commands
- Experience using Microsoft SQL Server (recommended)

Learning Objectives

- Understand the different types and benefits of stored procedures
- Design, create, and execute stored procedures in MS SQL Server
- Work with parameters, handle errors, and incorporate best practices
- Optimize, secure, and maintain stored procedures for performance and reliability
- Integrate stored procedures into real-world applications and workflows

Content Coverage

Module 1: Introduction to Stored Procedures in SQL Server

- Definition and purpose of stored procedures
- Key advantages and business cases
- Types of stored procedures: system, user-defined, extended, CLR
- How stored procedures fit into SQL Server architecture

Module 2: Fundamentals of Creating and Executing Stored Procedures

- Syntax and structure: CREATE PROCEDURE
- Naming conventions and parameter declaration
- Executing stored procedures with EXEC and sp_executesql
- Working with simple input and output parameters
- Hands-on examples and practice exercises

Module 3: Parameter Handling and Data Management

- Differences between input and output parameters
- Optional and default parameter values
- Using table-valued parameters
- Returning single vs. multiple result sets

Module 4: Advanced Stored Procedure Features

- Error handling with TRY...CATCH and @@ERROR
- Managing transactions within stored procedures
- Using local variables and control flow (IF, WHILE, CASE)
- Incorporating dynamic SQL within procedures

Module 5: Best Practices and Security

- Modularity and documentation standards
- Permission management and security considerations
- Techniques for avoiding SQL injection
- Strategies for debugging and testing stored procedures

Module 6: Performance Tuning and Optimization

- Understanding execution plans and reusability
- Writing efficient procedural code and using indexes

- Monitoring, measuring, and improving performance
- Optimizing resource cost and minimizing network traffic

Module 7: Maintenance and Real-World Scenarios

- Versioning and updating stored procedures
- Auditing, logging, and document control
- Capstone projects and hands-on case studies