Database Performance Tuning: SQL Server Masterclass

06 - 10 Oct 2025
London - Premier Inn Victorya

AGILE LEADERS
Training Center

Database Performance Tuning: SQL Server Masterclass

Ref.: 70_38504 **Date:** 06 - 10 Oct 2025 **Location:** London - Premier Inn Victorya **Fees:** 5700 Euro

Course Overview:

"Database Performance Tuning: SQL Server Masterclass" is a specialized 5-day corporate training designed to equip database administrators and technical professionals with practical skills and deep understanding of performance tuning in Microsoft SQL Server environments. With a focus on real-world performance issues and their solutions, this course delves into SQL performance optimization, execution plans, indexing techniques, and database optimization techniques using tools like SQL Server Profiler and Management Studio. Through hands-on examples, participants will learn how to identify bottlenecks, optimize queries, and tune systems for peak performance. Key topics include T-SQL optimization techniques, SQL Server execution plans, indexing best practices, and strategies for resolving slow queries. Participants will also gain insight into how to monitor workloads and manage performance efficiently using native SQL Server tools.

Target Audience:

- Database Administrators DBAs
- Database Developers
- Data Engineers
- IT System Analysts
- Software Engineers working with enterprise databases
- Technical Project Leads involved in performance-critical systems

Targeted Organizational Departments:

- IT Infrastructure
- Data Management Teams
- Software Development Units
- Enterprise Architecture Groups
- DevOps Teams
- Application Performance Monitoring Units

Targeted Industries:

- Banking and Financial Services
- Telecommunications
- Healthcare & Life Sciences
- Government & Public Sector
- E-commerce & Retail
- Insurance & Risk Management
- Oil & Gas and Energy Sectors

Course Offerings:

By the end of this course, participants will be able to:

- Analyze and interpret SQL Server execution plans
- Apply SQL performance optimization techniques in Microsoft SQL Server
- Tune T-SQL for efficient processing
- Use SQL Server Profiler and Extended Events for diagnostics
- Implement indexing strategies and query rewriting
- Apply advanced tuning techniques for enterprise-grade workloads
- Resolve common performance bottlenecks
- Monitor and optimize database workloads using SQL Server tools

Training Methodology:

This training course uses a blend of instructor-led sessions, real-time database labs, hands-on case studies, and collaborative diagnostics exercises. Participants will engage in performance troubleshooting drills, tuning labs, and guided walkthroughs of tools like SQL Server Management Studio and Profiler. The course emphasizes experiential learning using real SQL tuning scenarios, performance dashboards, and slow query analysis within Microsoft SQL Server environments.

Course Toolbox:

- Sample SQL Server databases for labs
- Query optimization checklists
- Execution plan templates and comparison sheets
- Troubleshooting flowcharts for SQL Profiler and Extended Events
- Access to Microsoft reference guides
- Tuning scripts and index templates
- Case-based assignments and solution decks
- Diagnostic tool overview slides insights only; tools are not provided

Course Agenda:

Day 1: SQL Server Architecture and Performance Foundations

- **Topic 1:** SQL Server Core Components and Architecture
- **Topic 2:** Execution Lifecycle and Query Processing Flow
- **Topic 3:** SQL Server Configuration Settings That Impact Performance
- **Topic 4:** Understanding Wait Types and Bottlenecks
- **Topic 5:** Performance Impact of TempDB and System Resources
- **Topic 6:** Introduction to Execution Plans and DMVs
- **Reflection & Review:** Key Architectural Insights for Tuning Readiness

Day 2: Query Tuning and Optimization Techniques

- **Topic 1:** Writing High-Performance T-SQL Queries
- **Topic 2:** Analyzing Query Plans and Identifying Costly Operators
- **Topic 3:** Avoiding Common Anti-Patterns in Query Design
- **Topic 4:** Understanding Parameter Sniffing and Query Recompilation
- **Topic 5:** Optimizing Joins, Subqueries, and Aggregations
- **Topic 6:** Leveraging Stored Procedures and Compiled Plans
- **Reflection & Review:** Techniques for Smarter Query Writing

Day 3: Indexing and Execution Plan Mastery

- **Topic 1:** Index Types and Their Performance Impact Clustered, Non-Clustered, Filtered
- **Topic 2:** Identifying Missing and Unused Indexes
- **Topic 3:** Statistics and Index Maintenance Best Practices
- **Topic 4:** Advanced Execution Plan Analysis and Query Store Usage
- **Topic 5:** Balancing Reads vs. Writes with Index Strategies
- **Topic 6:** Understanding Seek vs. Scan and Cardinality Estimation
- **Reflection & Review:** Index Strategy Deep Dive

Day 4: Monitoring and Troubleshooting SQL Server Workloads

- **Topic 1:** Real-Time Monitoring with Activity Monitor and Dynamic Management Views
- **Topic 2:** Using Extended Events and SQL Server Profiler
- **Topic 3:** Troubleshooting Blocking, Deadlocks, and Concurrency Issues
- **Topic 4:** Diagnosing TempDB and I/O Performance Issues
- **Topic 5:** Using Query Store and Resource Governor
- **Topic 6:** Building Performance Baselines and Dashboards
- **Reflection & Review:** Proactive Monitoring Strategies

Day 5: Advanced Tuning, Automation, and Troubleshooting Lab

- **Topic 1:** Optimization for ETL, Reporting, and Batch Operations
- **Topic 2:** Performance Tuning in Azure SQL and Cloud-Hosted Instances
- **Topic 3:** Automating Performance Monitoring and Alerts
- **Topic 4:** Final Lab: End-to-End Slow Query Diagnosis and Fix
- **Topic 5:** Final Lab: Resource Optimization and Deadlock Resolution
- **Topic 6:** Creating a Sustainable Tuning Strategy and Action Plan
- **Reflection & Review:** Lessons Learned and Next Steps

FAQ:

What specific qualifications or prerequisites are needed for participants before enrolling in the course?

A basic understanding of SQL and relational database concepts is expected. Prior hands-on experience with Microsoft SQL Server is highly recommended for maximum benefit.

How long is each day's session, and is there a total number of hours required for the entire course?

Each day's session is generally structured to last around 4-5 hours, with breaks and interactive activities included. The total course duration spans five days, approximately 20-25 hours of instruction.

Can this course be applied in cloud-hosted or hybrid SQL Server environments?

Yes. The techniques and diagnostics tools discussed can be applied to both on-premise and cloud-based SQL Server deployments, including Azure SQL.

How This Course is Different from Other SQL Server Tuning Courses:

Unlike general SQL Server courses that provide broad overviews, this masterclass focuses specifically on performance tuning with hands-on labs, diagnostic frameworks, and scenario-based troubleshooting. It goes beyond textbook methods by equipping professionals with actionable tuning skills using SQL Server Profiler, Extended Events, and advanced indexing strategies. The course emphasizes solving real-world slow query issues and managing workloads efficiently, providing a strategic performance mindset tailored to Microsoft SQL Server environments.

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Human Resources Training and Development Courses

IT Security Training & IT Training Courses

Leadership and Management Training Courses

Legal Training, Procurement and Contracting Courses

Maintenance Training and Engineering Training Courses

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WHO WE ARE

Agile Leaders is a renowned training center with a team of experienced experts in vocational training and development. With 20 years of industry experience, we are committed to helping executives and managers replace traditional practices with more effective and agile approaches.

OUR VISION

We aspire to be the top choice training provider for organizations seeking to embrace agile business practices. As we progress towards our vision, our focus becomes increasingly customer-centric and agile.

OUR MISSION

We are dedicated to developing value-adding, customer-centric agile training courses that deliver a clear return on investment. Guided by our core agile values, we ensure our training is actionable and impactful.

WHAT DO WE OFFER

At Agile Leaders, we offer agile, bite-sized training courses that provide a real-life return on investment. Our courses focus on enhancing knowledge, improving skills, and changing attitudes. We achieve this through engaging and interactive training techniques, including Q&As, live discussions, games, and puzzles.

AGILE LEADERS
Training Center

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