SQL Performance Tuning Training Course

Professional Development Training Course Outline

Category	Business Intelligence	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

SQL Performance Tuning Training Course is designed for database professionals, developers, and IT managers who want to master advanced techniques for optimizing SQL queries and improving database efficiency. Participants will learn to identify performance bottlenecks, analyze execution plans, and implement best practices to enhance database speed and scalability. This course combines theoretical knowledge with hands-on exercises to ensure participants can apply performance tuning strategies in real-world scenarios effectively.

With the increasing demand for high-performing databases in enterprise environments, this course equips professionals with the latest optimization tools, indexing strategies, query tuning methods, and performance monitoring techniques. Participants will gain practical skills to enhance application responsiveness, reduce system resource consumption, and ensure seamless data operations. By the end of this course, learners will be able to implement comprehensive SQL performance strategies to support organizational growth and business intelligence initiatives.

Programme Curriculum

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Course Objectives

1. Understand SQL query execution and performance metrics.
2. Analyze and interpret execution plans for optimization opportunities.
3. Implement indexing strategies to improve query speed.
4. Optimize joins, subqueries, and complex SQL statements.
5. Apply database partitioning and data distribution techniques.
6. Monitor database performance using built-in and third-party tools.
7. Identify and resolve resource contention and deadlocks.
8. Tune stored procedures and functions for optimal performance.
9. Utilize caching and query result optimization strategies.
10. Conduct real-time SQL performance audits.
11. Implement best practices for transactional and analytical workloads.
12. Develop proactive SQL performance monitoring processes.
13. Integrate performance tuning with enterprise-level database architecture.

Organizational Benefits

- Increased database efficiency and faster query processing.
- Reduced server resource utilization and operational costs.
- Enhanced application performance for end-users.
- Improved decision-making through faster data retrieval.
- Minimized downtime and system latency.
- Strengthened capability to handle large-scale databases.
- Increased ROI on database infrastructure investments.
- Reduced performance-related customer complaints.
- Standardized performance tuning practices across teams.
- Empowered IT teams with advanced SQL troubleshooting skills.

Target Audiences

- Database Administrators (DBAs)
- SQL Developers
- IT Managers
- Data Analysts
- Business Intelligence Professionals
- Software Engineers
- System Architects
- Technical Consultants

Course Duration: 5 days

Course Modules

Module 1: Introduction to SQL Performance Tuning

- Importance of performance tuning in modern databases
- Understanding query execution and performance metrics
- Key performance indicators (KPIs) for SQL queries
- Identifying common performance bottlenecks
- Introduction to execution plans and query analysis
- Case Study: Performance assessment of a large-scale retail database

Module 2: Indexing Strategies and Optimization

- Types of indexes: clustered, non-clustered, composite
- When and how to use indexes effectively
- Index maintenance and fragmentation considerations
- Impact of indexing on query performance
- Index selection for OLTP vs OLAP workloads
- Case Study: Index optimization for an e-commerce application

Module 3: Query Tuning Techniques

- Optimizing joins, subqueries, and nested queries
- Writing efficient SELECT statements
- Understanding and reducing query complexity
- Query rewriting strategies for performance improvement
- Avoiding common SQL anti-patterns
- Case Study: Query performance tuning in financial reporting

Module 4: Stored Procedures and Functions Tuning

- Performance considerations for stored procedures
- Optimizing functions and triggers
- Parameter sniffing and its effects on performance
- Using execution plan insights for procedure tuning
- Best practices for reusable SQL code
- Case Study: Tuning stored procedures in healthcare management systems

Module 5: Database Partitioning and Data Distribution

- Horizontal and vertical partitioning strategies
- Benefits of partitioning for large datasets
- Designing partitions for query performance
- Implementing table and index partitioning
- Optimizing partitioned data queries
- Case Study: Partitioning strategy for a telecom customer database

Module 6: Performance Monitoring and Troubleshooting

- Tools for monitoring SQL Server and other RDBMS
- Analyzing system resource utilization
- Detecting and resolving deadlocks and blocking issues
- Tracking long-running queries
- Performance dashboards and reports

- Case Study: Troubleshooting a performance slowdown in a banking database

Module 7: Caching and Query Result Optimization

- Query result caching techniques
- Leveraging temporary tables and materialized views
- Reducing redundant data processing
- Managing memory usage for optimal caching
- Optimizing frequently executed queries
- Case Study: Implementing caching in a SaaS application

Module 8: Real-Time Performance Audits and Best Practices

- Conducting SQL performance audits
- Documenting and analyzing audit results
- Creating tuning guidelines and checklists
- Continuous improvement and monitoring strategies
- Integrating performance tuning with DevOps practices
- Case Study: Full-scale audit and tuning for a logistics company

Training Methodology

- Interactive instructor-led sessions with live demonstrations
- Hands-on labs for real-world scenario practice
- Step-by-step query optimization exercises
- Analysis of execution plans and performance metrics
- Collaborative group problem-solving sessions
- Continuous assessment through quizzes and case studies

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

Ready to enroll or request a customized program? Book online or contact us:

Register Online Now

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