



## SQL Server Performance Tuning - Fast Track

### Course Title

SQL Server Performance Tuning - Fast Track

### Instructor

[Amit R S Bansal](#)

### Total Duration

15 hrs 12 mins

### Total Lecture Time

5 hrs 43 mins

### Total Demo Time

9 hrs 29 mins (*Yeah, demos are the real value*)

### Delivery Format

Video Course. Stream anywhere, anytime, any device, as many times.

### Course Description

One fine day you realize that you have to start tuning SQL Server for better performance. The need might have arisen from a recent performance issue, or the barrage of support tickets that are filling your inbox, or maybe your boss assigned this to you after realizing that SQL Server performance troubleshooting is not his cup of tea. Irrespective of the reason, the challenge is upon you to identify, diagnose and fix a variety of performance issue that is plaguing your SQL Server environment.

Performance troubleshooting can be categorized as proactive, real-time & reactive. If a well-defined methodology is followed during the proactive phase, you will have to fire-fight less during the real-time troubleshooting phase and you will have a lot of meaningful performance data to work within the reactive phase, which will further help you in preventing performance cases.

Subscribe to this demo-packed vide course, where you will learn the three approaches of SQL Server performance troubleshooting & tuning. You will learn the practical way, exactly like how you would troubleshoot in the real world with lots of code and scripts. Amongst many takeaways, here are some interesting ones:

Develop a performance troubleshooting methodology for the real-world

Analyzing and troubleshooting common wait types

Proactive, reactive and real-time CPU troubleshooting

Troubleshooting IO performance bottlenecks

Tracking SQL Server memory consumption and fixing OOM errors

Dealing with Tempdb madness

Top six query tuning techniques that will solve 75% of performance issues (real-world query tuning)

Top six indexing strategies that will fix 60% indexing woes

Get rid of deadlocks (yes, you hear it right)

SQL Server 2019 performance enhancements

In total, there will be six modules comprising of close to 50 demos, all from the real-world. Yes, a lot of content and well-paced. You will get all the demo scripts, most of them being production-ready. You will also get PDF version of the content.

### **Pre-Requirement**

You need to have at least one year of genuine SQL Server experience to gain maximum from this course

### **Course Outline**

#### **Module 0: Introduction**

- Before You Begin
- Modules
- Demo Setup
- What Not To Expect
- What To Expect
- How To Get The Best Out Of This Course

#### **Module 1: Performance Troubleshooting Methodology**

- Where Shall I Begin?
- An Ocean Within An Ocean
- Installation & Configuration Best Practices
- Performance Monitoring, Benchmarking & Baselining
- Developing a Performance Troubleshooting Methodology
- Tools & Utilities
- Demos
- Summary

#### **Module 2: Wait Statistics**

- Query Execution
- Waiting & Queuing
- Putting It Together
- Working With Wait Stats
- Common Wait Types
- System Wait Types
- PAGEIOLATCH Wait Type
- CXPACKET Wait Type
- ASYNC\_NETWORK\_IO Wait Type
- RESOURCE\_SEMAPHORE Wait Type
- Demos

- Summary

### **Module 3: The Awesome Foursome – CPU, Memory, IO, Tempdb**

- A Classic Example
- CPU Troubleshooting
- Memory Troubleshooting
- IO Troubleshooting
- Tempdb Troubleshooting
- Demos
- Summary

### **Module 4: Query Tuning**

- Understanding Execution Plan
- Statistics & Cardinality Estimation
- Query Tuning
  - The Bad Bookmark Lookups
  - Expensive Sorts
  - Implicit Conversion
  - Non-SARGability
  - Stale Statistics
  - Parameter Sniffing
  - Re-Writing T-SQL
- Query Store (SQL 2016)
- Automatic Query Tuning (SQL 2017)
- Intelligent Query Processing (SQL 2017 & 2019)
- Demos
- Summary

### **Module 5: Index Tuning**

- Indexing Architecture
- Index Fragmentation
- Indexing Guidelines
- Index Tuning
- Identifying Missing Indexes
- Identifying Unused Indexes
- Demos
- Summary

### **Module 6: Concurrency Troubleshooting**

- Data Modification & Concurrency Architecture
- Isolation Levels
- Troubleshooting Blocking
- Best Practices
- Troubleshooting Deadlocks
- Best Practices
- Demos
- Summary

## **Module 7: Wrap Up**

[Learn More: http://bit.ly/SQLMaestrosVC](http://bit.ly/SQLMaestrosVC)

**Course Title**SQL Server Performance Tuning -  
Fast Track

Modules	Content Type	Duration	
<b>Module 0: Introduction</b>			
	Lecture	Full Module	16:39:00
<b>Before You Begin The Demos</b>			
	Lecture	Before You Begin The Demos	7:42:00
<b>Module 1: Performance Troubleshooting Methodology</b>			
	Lecture	Intro & Agenda	1:30:00
	Lecture	Where Shall I Begin?	1:54:00
	Lecture	An Ocean Within An Ocean	3:40:00
	Lecture	Installation and Configuration Best Practices	11:33:00
	Demos	Demos: Reviewing Power Plan Configuration	12:01:00
	Demos	Demos: Tempdb Data Files Configuration	18:23:00
	Demos	Demos: Rewriting T-SQL Code	9:11:00
	Lecture	Performance Monitoring, Benchmarking & Baselining	10:10:00
	Lecture	Developing a Performance Troubleshooting Methodology	6:35:00
	Lecture	Tools & Utilities	
	Lecture	Summary	7:10:00
		<b>Total Duration</b>	<b>82:07:00</b>
<b>Module 2: Wait Statistics</b>			
	Lecture	Intro & Agenda	
	Lecture	Query Execution	5:24:00
	Lecture	Waiting & Queuing (1)	3:54:00
	Lecture	Waiting & Queuing (2)	4:14:00
	Lecture	Putting It Together	2:46:00
		Working With Wait Stats	
		Common Wait Types	
	Lecture	System Wait Types	11:18:00
	Demos	Demos: Working With Waits	16:43:00
	Lecture	PAGEIOLATCH Wait Type	3:15:00
	Demos	Demos: PAGEIOLATCH Wait Type	12:05:00
	Lecture	CXPACKET Wait Type	6:16:00
	Demos	Demos: CXPACKET Wait Type	19:04:00
	Lecture	ASYNC_NETWORK_IO Wait Type	1:05:00
	Demos	Demos: ASYNC_NETWORK_IO Wait Type	10:40:00
	Lecture	RESOURCE_SEMAPHORE Wait Type	3:13:00

	Demos: RESOURCE_SEMAPHORE	
Demos	Wait Type	15:40:00
Lecture	Summary	1:40:00
	Bonus Demos: Capturing Wait Stats	
Demos	Using Extended Events	13:50:00
	Bonus Demos: Capturing Session	
Demos	Level Waits	7:12:00
Trivia	Trivia Time :)	1:38:00
	<b>Total Duration</b>	<b>139:57:00</b>

### Module 3: The Awesome Foursome – CPU, Memory, IO, Tempdb

	Intro & Agenda	
Lecture		1:11:00
Lecture	A Classic Example	6:00:00
Lecture	CPU Troubleshooting	11:59:00
	Demos: CPU Troubleshooting (Proactive)	
Demos		16:49:00
	Demos: CPU Troubleshooting (Realtime)	
Demos		24:58:00
	Demos: CPU Troubleshooting (Reactive)	
Demos		8:16:00
Lecture	Memory Troubleshooting	15:20:00
	Demos: Memory Overview & Tracking Consumption	
Demos		9:41:00
Demos	Demos: Memory Troubleshooting	10:30:00
Lecture	IO Troubleshooting	8:11:00
	Demos: IO Troubleshooting Virtual File Stats	
Demos	Most Expensive Queries	21:02:00
Lecture	Tempdb Troubleshooting	9:28:00
	Demos: Tempdb Troubleshooting (Tempdb Usage Monitoring)	
Demos		15:25:00
	Demos: Tempdb Troubleshooting (Allocations/De-allocations/Contention Tracking)	
Demos		11:36:00
	Demos: Tempdb Troubleshooting (Eager Writes)	
Demos		12:20:00
Lecture	Summary	2:02:00
	Bonus Demos: Performance Monitor Counters	
Demos		24:30:00
Trivia	Trivia Time :)	2:12:00
	<b>Total Duration</b>	<b>211:30:00</b>

### Module 4: Query Tuning

	Intro & Agenda	
Lecture	Understanding Execution Plans	13:09:00

	Demos: Understanding Execution Plans & Common Plan	
Demos	Iterators/Operators	41:36:00
Lecture	Statistics & Cardinality Estimation	10:39:00
Lecture	Bad Bookmark Lookups	3:30:00
Demos	Demos: Bad Bookmark Lookups	16:45:00
Lecture	Expensive Sorts	3:09:00
Demos	Demos: Expensive Sorts	20:35:00
Lecture	Implicit Conversion	1:21:00
Demos	Demos: Implicit Conversion	6:11:00
Lecture	Non-SARG-Ability	1:29:00
Demos	Demos: Non-SARG-Ability	10:25:00
Lecture	Stale Statistics	12:58:00
Demos	Demos: Stale Statistics	6:31:00
Lecture	Parameter Sniffing	1:59:00
Demos	Demos: Parameter Sniffing	16:28:00
Lecture	Re-Writing TSQL Code	1:45:00
Demos	Demos: Re-Writing TSQL Code	12:48:00
Lecture	Query Store	3:08:00
Demos	Demos: Query Store	10:56:00
Lecture	Automatic Tuning	1:35:00
Demos	Demos: Automatic Tuning	20:56:00
Lecture	Intelligent Query Processing	4:59:00
Demos	Demos: Intelligent Query	11:14:00
Lecture	Summary	1:57:00
Trivia	Trivia Time :)	1:50:00
	<b>Total Duration</b>	<b>237:53:00</b>

## Module 5: Index Tuning

	Intro & Agenda	
Lecture	Index Architecture	3:08:00
Lecture	Clustered Index Architecture	4:26:00
Lecture	Non Clustered Index Architecture	5:05:00
Lecture	Index Fragmentation	8:01:00
Demos	Demos: Index Fragmentation	10:49:00
Lecture	Index Tuning Guidelines	8:03:00
Demos	Demos: Speeding Aggregates and Removing Sorts	16:03:00
Demos	Demos: Removing Sorts	14:09:00
Demos	Demos: Removing Bookmark Lookups	12:29:00
Demos	Demos: Indexing for AND & OR Operator	14:20:00
Demos	Demos: Index Column Order	19:35:00
Demos	Demos: Index for Joins	10:08:00
Lecture	Identifying Missing Indexes	1:53:00
Demos	Demos: Identifying Missing Indexes	3:39:00
Lecture	Identifying Unused Indexes	1:31:00

Demos	Demos: Identifying Unused Indexes	2:32:00
Lecture	Summary	1:07:00
Trivia	Trivia Time :)	1:51:00
<b>Total Duration</b>		<b>138:49:00</b>

## Module 6: Concurrency Troubleshooting

Lecture	Intro & Agenda	0:50:00
	Data Modification & Concurrency	
Lecture	Architecture	5:40:00
Lecture	Concurrency & Locking	3:53:00
	Isolation Level - READ	
Lecture	UNCOMMITTED	2:11:00
Lecture	Isolation Level - READ COMMITTED	1:15:00
Lecture	Isolation Level - REPEATABLE READ	5:19:00
	Isolation Level - SERIALIZABLE	
	Consurrency Problems vs Isolation	
Lecture	Levels	6:09:00
Demos	Demos: Isolation Level - Dirty	5:53:00
	Demos: Isolation Level - Non-	
Demos	Repeatable Reads	6:22:00
	Demos: Isolation Level - Phantom	
Demos	Reads	7:13:00
Lecture	Troubleshooting Locking & Blocking	3:22:00
Demos	Demos: Troubleshooting Blocking	5:01:00
	Best Practices - Locking	
	Troubleshooting Deadlocks	
Lecture	Best Practices - Deadlocks	6:05:00
Demos	Demos: Troubleshooting Deadlocks	23:15:00
Demos	Demos: Fixing Deadlocks	5:28:00
Lecture	Summary	2:35:00
Trivia	Trivia Time :)	2:10:00
Trivia	Trivia Time :)	0:00:13
<b>Total Duration</b>		<b>92:41:13</b>

## Module 7: Wrap Up

Lecture	Full Module	4:03:00
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**Total Course Duration (MM:SS:00) 907:13:00**  
**Total Course Duration (HH:MM:SS) 15 hrs 12 mins**

**Total Lecture Time 5 hrs 43 mins**

**Total Demo Time 9 hrs 29 mins**

*Yeah, demos are the real value !*