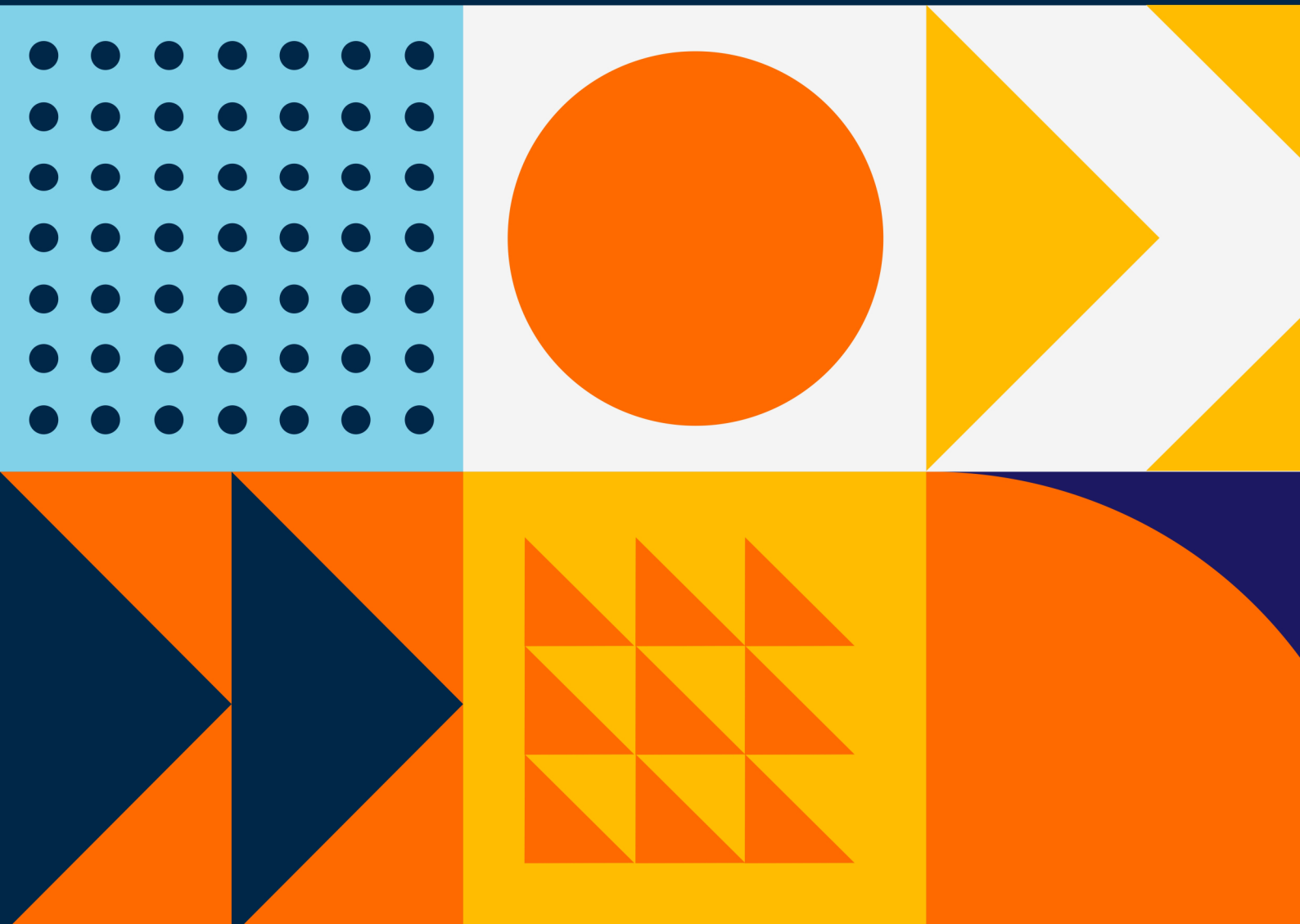




We do **IT**
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Industry Certifications for IT & Management:

**Performance Tuning And Optimizing SQL
Databases M10987**





About Us

who we are.

Averest is one of the leading and fast-growing companies specialising in Information Technologies, Cyber Security, Cloud Computing, DevOps, Artificial Intelligence, Agile and Scrum, and Project Management, which is based in the United Kingdom and Turkey. Averest provides high-quality tech-accredited training and business solutions to its clients on these topics and more.



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Program

Performance Tuning And Optimizing SQL Databases M10987

Overview

The Microsoft SQL Server 2016 - Performance Tuning and Optimizing SQL Databases (MS-10987) is a course that offers advanced skills and knowledge to individuals in database management and maintenance experts to ensure performance tuning and improvement of Standardized Query Language database deployments.

What You Will Learn?

- Describe the high-level architectural overview of SQL Server and its various components.
- Describe the SQL Server execution model, waits, and queues.
- Describe core I/O concepts, Storage Area Networks, and performance testing.
- Describe architectural concepts and best practices related to data files for user databases and TempDB.
- Describe architectural concepts and best practices related to Concurrency, Transactions, Isolation Levels, and Locking.
- Describe the architectural concepts of the Optimizer and how to identify and fix query plan issues.
- Describe architectural concepts, troubleshooting scenarios, and best practices related to Plan Cache.
- Describe architectural concepts, troubleshooting strategy, and usage scenarios for Extended Events.
- Explain data collection strategies and techniques to analyze collected data.
- Understand techniques to identify and diagnose bottlenecks to improve overall performance.

Course Key Features

- Microsoft accredits us for this Performance Tuning and Optimizing SQL Databases Training
- Understand the concept of SQL Server Memory and SQL Server Concurrency.
- Acquire knowledge on how to plan cache internals and troubleshoot plan cache issues.

Eligibility

Program

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People administering and maintaining SQL servers to ensure the best performance are the primary audience for this training program. Individuals writing queries against data wanting to provide the best performance execution of workloads can also take the course. People directly involved in developing applications to deliver content via SQL server are also eligible for this course.

Program

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Program Outline

Module 1: SQL Server Architecture, Scheduling, and Waits

- This module covers high-level architectural overviews of SQL Server and its various components. It dives deep into SQL Server execution models, waits, and queues.
- Lessons:
- SQL Server Components and SQL OS
- Windows Scheduling vs SQL Scheduling
- Waits and Queues
- Lab: SQL Server Architecture, Scheduling, and Waits
- After completing this module, you will be able to:
- Describe the SQL Server components and SQL OS
- Describe the differences between Windows Scheduling and SQL scheduling
- Describe waits and queues

Module 3: Database Structures

- This module covers Database Structures, Data File, and TempDB Internals. It focuses on architectural concepts and best practices related to data files for user databases and TempDB.
- Lessons:

Module 2: SQL Server I/O

- This module covers core I/O concepts, Storage Area Networks, and performance testing. It focuses on SQL Server I/O operations and how to test storage performance.
- Lessons:
- Core Concepts
- Storage Solutions
- I/O Setup and Testing
- Lab: Testing Storage Performance
- After completing this module, you will be able to:
- Describe the core concepts of SQL I/O
- Describe storage solutions
- Setup and test I/O

Module 4: SQL Server Memory

- This module covers Windows and SQL Server Memory internals. It focuses on architectural concepts and best practices related to SQL Server Memory Configuration.
- Lessons:

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- Database Structure Internals
- Data File Internals
- TempDB Internals
- Lab: Database Structures
- After completing this module, you will be able to:
- Describe the internal setup of database structures
- Describe the internal setup of data files.
- Describe the internal setup of TempDB

Module 5: SQL Server Concurrency

- This module covers Transactions and Locking Internals. It focuses on architectural concepts and best practices related to Concurrency, Transactions, Isolation Levels, and Locking.
- Lessons:
- Concurrency and Transactions
- Locking Internals
- Lab: SQL Server Concurrency
- After completing this module, you will be able to:
- Explain concurrency and transactions
- Describe locking

- Windows Memory
- SQL Server Memory
- In-Memory OLTP
- Lab: SQL Server Memory
- After completing this module, you will be able to:
- Describe the components of Windows memory
- Describe the components of SQL Server memory
- Describe In-Memory OLTP

Module 6: Statistics and Index Internals

- This module covers Statistics and Index Internals. It focuses on architectural concepts and best practices related to Statistics and Indexes.
- Lessons:
- Statistics Internals and Cardinality Estimation
- Index Internals
- Columnstore Indexes
- Lab: Statistics and index Internals
- After completing this module, you will be able to:
- Describe statistics internals
- Explain cardinality estimation
- Describe why you would use Columnstore indexes and be able to implement one

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Module 7: Query Execution and Query Plan Analysis

- This module covers Query Execution and Query Plan Analysis. It focuses on the architectural concepts of the Optimizer and how to identify and fix query plan issues.
- Lessons:
- Query execution and optimizer internals
- Query execution plans
- Analyzing query execution plans
- Lab: Query execution and query plan analysis
- After completing this module, you will be able to:
- Describe query execution and optimizer
- Analyze query plans and resolve common issues

Module 9: Extended Events

- This module covers Extended Events. It focuses on architectural concepts, troubleshooting strategy, and usage scenarios for Extended Events.
- Lessons:
- Extended events core concepts
- Working with extended events
- Lab: Extended events
- After completing this module, you will be able to:

Module 8: Plan Caching and Recompilation

- This module covers Plan Caching and Recompilation. It focuses on architectural concepts, troubleshooting scenarios, and best practices related to Plan Cache.
- Lessons:
- Plan cache internals
- Troubleshooting plan cache issues
- Query store
- Lab: Plan caching and recompilation
- After completing this module, you will be able to:
- Describe plan cache
- Troubleshoot plan cache issues
- Describe the query store and why you would use it

Module 10: Monitoring, Tracing, and Baselineing

- This module covers tools and techniques to monitor, trace, and baseline SQL Server performance data. It focuses on data collection strategies and techniques to analyze collected data.
- Lessons:
- Monitoring and tracing
- Baselineing and benchmarking
- Lab: Monitoring, Tracing and Baselineing

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- Describe the core concepts of extended events
- Implement extended events
- After completing this module, you will be able to:
- Describe various options for monitoring and tracing
- Describe various options for benchmarking and baselining

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Program Schedule



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