



MICROSOFT TRAINING

# Azure Sql Data Warehouse Performance Tuning And Optimization

*Optimize Azure SQL Data Warehouse performance and master advanced tuning techniques for efficient data solutions.*

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DURATION

**2 hours**

LEVEL

**Intermediate**

FORMAT

**Instructor-Led**

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- Globally Recognized Certification

- Expert-Led Hands-On Training

- Flexible Scheduling

Computer Pride | 1st Floor, ICEA Building, Kenyatta Avenue, Nairobi | [www.computer-pride.co.ke](http://www.computer-pride.co.ke)

## COURSE OVERVIEW

This intermediate-level "Azure SQL Data Warehouse Performance Tuning and Optimization" course is meticulously designed for data professionals seeking to master the intricacies of enhancing query performance and operational efficiency within Microsoft Azure Synapse Analytics (formerly Azure SQL Data Warehouse). Over the course of 2 hours, participants will delve into critical optimization techniques, covering everything from strategic data distribution and indexing to advanced workload management and query rewriting. You will gain hands-on insights into diagnosing performance bottlenecks and implementing effective solutions that significantly improve data processing speeds and reduce computational costs. By mastering the core technologies like distributed tables, clustered columnstore indexes, and resource classes, you will be equipped to build and maintain highly performant analytical solutions on Azure. This specialization empowers you to transform slow-running queries into lightning-fast insights, making you an invaluable asset to any organization leveraging Azure for large-scale data warehousing. Elevate your expertise and ensure your data platforms operate at peak efficiency.

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|----------|--------------|
| Duration | 2 hours      |
| Level    | Intermediate |
| Vendor   | Microsoft    |

## COURSE CURRICULUM

### 01 Module 1: Foundations of Azure Synapse Performance

- Understanding Azure Synapse Analytics architecture for performance
- Introduction to distributed data processing
- Key performance metrics and their significance
- Identifying common performance challenges in data warehouses

### 02 Module 2: Data Distribution and Indexing Strategies

- Choosing the right distribution key (Hash, Round-Robin, Replicated)
- Impact of distribution on query performance
- Clustered Columnstore Indexes (CCI) vs. Clustered Rowstore Indexes (CRI)
- Best practices for creating and maintaining indexes
- Table partitioning for performance

### 03 Module 3: Workload Management and Concurrency

- Introduction to Workload Groups and Classifiers
- Managing concurrency with resource classes
- Setting up workload isolation and priorities
- Monitoring and tuning workload management policies

### 04 Module 4: Advanced Query Optimization Techniques

- Analyzing query plans and identifying bottlenecks
- Optimizing JOINS and aggregations
- Utilizing materialized views for performance
- Data Loading optimization strategies (PolyBase, COPY statement)
- Best practices for T-SQL query writing in Synapse

### 05 Module 5: Monitoring, Diagnostics, and Troubleshooting

- Using Azure Monitor and Synapse Studio for performance insights

- Leveraging DMVs (Dynamic Management Views) for diagnostics
- Troubleshooting common performance issues (skew, parallelism, resource waits)
- Implementing continuous performance monitoring

## CAREER PATHWAYS

Graduates of this program are prepared for the following roles:

- > **Azure Data Engineer**
- > **Data Warehouse Performance Specialist**
- > **Cloud Database Administrator (Azure Focus)**

## FREQUENTLY ASKED QUESTIONS

### **Q: What prerequisite knowledge or experience is recommended to get the most out of this course?**

This intermediate course assumes you have a foundational understanding of SQL concepts, T-SQL programming, and basic familiarity with Azure cloud services, particularly Azure Synapse Analytics (formerly Azure SQL Data Warehouse) or general data warehousing principles. Prior experience with querying large datasets is highly beneficial.

### **Q: How will mastering performance tuning in Azure Synapse Analytics directly impact my organization's cloud expenditure?**

Optimizing performance in Azure Synapse Analytics can significantly reduce operational costs. By learning to tune queries, manage workloads efficiently, and choose appropriate data distribution strategies, you can minimize the consumption of compute resources (DWUs) and storage, leading to more cost-effective data processing and analytics. This course provides the skills to identify and eliminate inefficient resource usage.

### **Q: What specific types of performance bottlenecks will I be equipped to diagnose and resolve after completing this course?**

Upon completion, you will be proficient in diagnosing and resolving bottlenecks related to data skew, suboptimal data distribution, inefficient indexing strategies, high query concurrency leading to resource contention, poorly written T-SQL queries, and inefficient data loading processes. You'll gain the skills to analyze execution plans and leverage Synapse monitoring tools to pinpoint and address these performance inhibitors.

## ABOUT COMPUTER PRIDE



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With over 15 years of excellence, Computer Pride delivers globally recognized certification programs from leading technology vendors. Located on Kenyatta Avenue in Nairobi's CBD, our state-of-the-art facilities and expert instructors have empowered thousands of professionals across East Africa.

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## READY TO ENROL?

Take the next step in your technology career.

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