Oracle Database 12c: SQL Tuning for Developers

In the Oracle Database: SQL Tuning for Developers course, you learn about Oracle SQL tuning and how to apply tuning techniques to your SQL code. Learn the different ways in which data can be accessed efficiently. In this course, you will be introduced to Oracle Database Exadata Express Cloud Service.

Learn To:

- Use Oracle tools to identify inefficient SQL statements.
- Use Automatic SQL Tuning.
- Use Real Time SQL monitoring.
- Write more efficient SQL statements.
- Monitor and trace high load SQL statements.
- Manage optimizer statistics on database objects.
- Understand the optimizer process steps and operators.
- Interpret execution plans.
- Perform application tracing.
- Gain an understanding of the Oracle Database Exadata Express Cloud Service.

Benefits To You:

Benefit from gaining a deeper understanding of Oracle SQL statement tuning and how write well-tuned SQL statements appropriate for the Oracle database in this application development-centric course. You will learn how to decipher, decide and then apply tuning to your SQL code. Various tuning techniques are demonstrated.

Audience

- Administrator
- Developer

Objectives

- Modify a SQL statement to perform at its best

- Identify poorly performing SQL
- Trace an application through its different levels of the application architecture
- Understand how the Query Optimizer makes decisions about how to access data
- Define how optimizer statistics affect the performance of SQL
- List the possible methods of accessing data, including different join methods
- Gain an understanding of the Oracle Database Exadata Express Cloud Service

Topics

- Introduction
  - Course Objectives, Course Agenda and Appendixes Used in this Course
  - Audience and Prerequisites
  - Sample Schemas Used in the Course
  - Class Account Information
  - SQL Environments Available in the Course
  - Workshops, Demo Scripts, and Code Example Scripts
  - Appendices in the Course
- Introduction to SQL Tuning
  - SQL Tuning Session
  - SQL Tuning Strategies
  - Development Environments: Overview
  - SQLTXPLAIN (SQLT) Diagnostic Tool
- Using Application Tracing Tools
  - Using the SQL Trace Facility: Overview
  - Steps Needed Before Tracing
  - Available Tracing Tools: Overview
  - The trcsess Utility
  - Formatting SQL Trace Files: Overview
- Understanding Basic Tuning Techniques
  - Developing Efficient SQL statement
  - Scripts Used in This Lesson
  - Table Design
  - Index Usage
  - Transformed Index
  - Data Type Mismatch
  - NULL usage
  - Tune the ORDER BY Clause
- Optimizer Fundamentals
  - SQL Statement Representation
  - SQL Statement Processing
  - Why Do You Need an Optimizer?
  - Components of the Optimizer
  - Query Transformer
  - Cost-Based Optimizer
  - Adaptive Query Optimization
  - Optimizer Features and Oracle Database Releases
- Generating and Displaying Execution Plans
  - Execution Plan?
  - The EXPLAIN PLAN Command
  - Plan Table
  - AUTOTRACE
  - V$SQL_PLAN View
  - Automatic Workload Repository
  - SQL Monitoring

- Interpreting Execution Plans and Enhancements
  - Interpreting a Serial Execution Plan
  - Adaptive Optimizations
- Optimizer: Table and Index Access Paths
  - Row Source Operations
  - Main Structures and Access Paths
  - Full Table Scan
  - Indexes
  - Common Observations
- Optimizer Join Operations
  - Join Methods
  - Join Types
- Other Optimizer Operators
  - SQL operators
  - Other N-Array Operations
  - Result Cache operators
- Introduction to Optimizer Statistics Concepts
  - Optimizer Statistics
  - Types of Optimizer Statistics
  - Gather and Manage Optimizer Statistics: Overview
- Using Bind Variables
  - Cursor Sharing and Different Literal Values
  - Cursor Sharing and Bind Variables
- SQL Plan Management
  - Maintaining SQL Performance
  - SQL Plan Management
- Workshops
  - Workshop 1
  - Workshop 2
  - Workshop 3
  - Workshop 4
  - Workshop 5
  - Workshop 6 & 7
  - Workshop 8
  - Workshop 9
- Oracle Cloud Overview
  - Introduction to Oracle Cloud & Oracle Cloud Services
  - Cloud Deployment Models
  - Evolving from On-premises to Exadata Express
  - What is in Exadata Express?
  - Exadata Express for Users & Developers
  - Oracle Exadata Express Cloud Service
  - Getting Started with Exadata Express
  - Service Console & Web Access through Service Console