Oracle Database: SQL Tuning for Developers Ed 2

Duration: 3 Days

What you will learn

In this application development-centric course, students learn about Oracle SQL statement tuning and how to write well-tuned SQL statements appropriate for the Oracle database. Students learn to interpret execution plans and the different ways in which data can be accessed. Students are shown how to decipher, decide and then apply tuning to their SQL code. Various tuning techniques are demonstrated. For example, taking advantage of bind variables, trace files, and using the different types of indexes.

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.

Benefits To You:

Benefit from gaining a deeper understanding of Oracle SQL statement tuning and how to 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.

Related Training

Required Prerequisites

Familiarity with database architecture

Knowledge of SQL and PL/SQL

Oracle Database 12c R2: Introduction to SQL Ed 2

Suggested Prerequisites

Oracle Database 12c R2: SQL Workshop

Oracle Database 12c R2: SQL Workshop I Ed 3

Course Objectives

Modifying a SQL statement to perform at its best

Identifying poorly performing SQL

Tracing an application through its different levels of the application architecture

Understanding how the Query Optimizer makes decisions about how to access data

Defining how optimizer statistics affect the performance of SQL

Listing the possible methods of accessing data

including different join methods

Course 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
DBML_SQL_MONITOR

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