Oracle Database 11g: SQL Tuning Workshop

Duration: 3 Days

What you will learn

The SQL Tuning Workshop class covers investigative methods that reveal varying levels of detail about how the Oracle database executes a SQL statement. Students learn the different ways in which data can be accessed, which ones are most efficient under specific circumstances, and how to ensure that the best method is used. Partitioning topics are covered, in addition to taking advantage of hints, bind variables, and different types of indexes.
This course counts towards the Hands-on course requirement for the Oracle Database 11g Administrator Certification. Only instructor-led inclass or instructor-led online formats of this course will meet the Certification Hands-on Requirement. Self Study CD-Rom and Knowledge Center courses DO NOT meet the Hands-on Requirement.
Learn to:

Identify Poorly Performing SQL
Understand the Query Optimizer
Trace applications
Monitor SQL execution in real time
Interpret execution plans

A Live Virtual Class (LVC) is exclusively for registered students; unregistered individuals may not view an LVC at any time. Registered students must view the class from the country listed in the registration form. Unauthorized recording, copying, or transmission of LVC content may not be made.

Audience
Application Developers
Data Warehouse Developer
Developer
Support Engineer
Technical Consultant

Related Training

Required Prerequisites

Oracle Database: Introduction to SQL

Course Objectives
Identify problem SQL statements

Modify a SQL statement to perform at its best

Trace an application

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

Interpret execution plans

Use optimizer hints effectively

Generate a load test

Course Topics

Exploring the Oracle Database Architecture
Oracle Database Server Architecture: Overview
Oracle Database Memory Structures: Overview
Background Process Roles
Automatic Shared Memory Management
Automated SQL Execution Memory Management
Automatic Memory Management
Database Storage Architecture
Logical and Physical Database Structures

Introduction to SQL Tuning
Reasons for Inefficient SQL Performance
Performance Monitoring Solutions
Monitoring and Tuning Tools: Overview
EM Performance Pages for Reactive Tuning
CPU and Wait Time Tuning Dimensions
Scalability with Application Design, Implementation, and Configuration
Common Mistakes on Customer Systems
Proactive Tuning Methodology

Introduction to the Optimizer
Structured Query Language
SQL Statement Representation, Implementation & Processing: Overview
SQL Statement Parsing: Overview
Why Do You Need an Optimizer?
Optimization During Hard Parse Operation
Cost-Based Optimizer
Controlling the Behavior of the Optimizer
Optimizer Features and Oracle Database Releases

Optimizer Operators
Row Source Operations
Main Structures and Access Paths
Full Table Scan
Indexes: Overview
Using Indexes: Considering Nullable Columns
Bitmap Indexes, Composite Indexes &Invisible Index
Guidelines for Managing Indexes

Clusters

Interpreting Execution Plans
Execution Plan
Links Between Important Dynamic Performance Views
Automatic Workload Repository (AWR)
Generating SQL Reports from AWR Data
SQL Monitoring: Overview
Reading More Complex Execution Plans
Reviewing the Execution Plan
Looking Beyond Execution Plans

Case Study: Star Transformation
The Star & Snowflake Schema Model
Execution Plan Without Star Transformation
Retrieving Fact Rows from One Dimension All Dimensions
Joining the Intermediate Result Set with Dimensions
Using Bitmap Join Indexes
Star Transformation
Bitmap Join Indexes

Optimizer Statistics
Optimizer Statistics & Types of Optimizer Statistics
Multicolumn Statistics: Overview
Expression Statistics: Overview
Gathering System Statistics
Statistic Preferences: Overview
Optimizer Dynamic Sampling: Overview
Locking Statistics

Using Bind Variables
Cursor Sharing and Different Literal Values
Cursor Sharing and Bind Variables
Bind Variables in SQL*Plus & Enterprise Manager
Cursor Sharing Enhancements
Adaptive Cursor Sharing: Overview
Interacting with Adaptive Cursor Sharing

Using Optimizer Hints
Optimizer Hints: Overview
Types of Hints
Specifying Hints
Rules for Hints
Hint Recommendations
Hint Categories
Optimization Goals and Approaches
Additional Hints

Application Tracing
End-to-End Application Tracing Challenge
Location for Diagnostic Traces
What Is a Service?

Use Services with Client Applications
Trace Your Own Session
SQL Trace File Contents
Formatting SQL Trace Files: Overview
Invoking the tkprof Utility

Automating SQL Tuning
Tuning SQL Statements Automatically
Application Tuning Challenges
SQL Tuning Advisor: Overview
Stale or Missing Object Statistics
SQL Statement Profiling
Plan Tuning Flow and SQL Profile Creation
Database Control and SQL Tuning Advisor
Implementing Recommendations

Related Courses

Oracle Database 11g: SQL Tuning Workshop - Self-Study Course