

Oracle Database 11g SQL Tuning (24 hrs.)

This Oracle Database 11g: SQL Tuning Workshop training assists database developers, DBAs and SQL developers in identifying and tuning inefficient SQL statements. You'll explore investigative methods to reveal varying levels of detail about how the Oracle database executes the SQL statement; this helps you determine the root causes of the inefficient SQL statements.

Gain expertise in relational database data management as you learn how to effectively use SQL commands against your business data. These features will help you query and manipulate data within the database, use the dictionary views to retrieve metadata and create reports about their schema objects. Expert instructors will also help you explore how the optimizer chooses the path. You'll also learn how to influence the optimizer to ensure the best method is used.

Prerequisites: Oracle Database 11g: SQL Fundamentals

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
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Introduction to the Optimizer

- Structured Query Language
- SQL Statement Representation, Implementation & Processing: Overview
- SQL Statement Parsing: Overview
- Course Detail
- ADA_Rep_About_Oracle Database 11g SQL Tuning P2

- 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 Course Detail

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- 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