SQL Performance Tuning Training Course Content

Exploring the Oracle Database Architecture

- Describe the major architectural components of Oracle Database server
- Explain memory structures
- Describe background processes
- Correlate logical and physical storage structures

Introduction to SQL Tuning

- Describe what attributes of a SQL statement can make it perform poorly
- Describe the Oracle tools that can be used to tune SQL
- Explain the tuning tasks

Introduction to the Optimizer

- Describe the execution steps of a SQL statement
- Explain the need for an optimizer
- Explain the various phases of optimization
- Control the behavior of the optimizer

Interpreting Execution Plans

- Gather execution plans
- Display execution plans, display xplan
- Interpret execution plans

Application Tracing

- Configure the SQL Trace facility to collect session statistics
- Use the trcsess utility to consolidate SQL trace files
- Format trace files using the tkprof utility
- Interpret the output of the tkprof command

Optimizer Operations

- Describe the SQL operations for tables and indexes
- Describe the possible access paths for tables and indexes

Optimizer: Join Operations

- Describe the SQL operations for joins
- Describe the possible access paths for joins

Other Optimizer Operations

- Describe Clusters, In-List, Sorts, Filters and Set Operations
- Use Result Cache operations

Case Study: Star Transformation

- Define a star schema, a star query plan without transformation and a star query plan after transformation

Optimizer Statistics

- Gather optimizer statistics
- Gather system statistics
- Set statistic preferences
- Use dynamic sampling
- Manipulate optimizer statistics

Using Bind Variables

- Explain the benefits of using bind variables
- Use bind peeking
- Use adaptive cursor sharing

SQL Tuning Advisor

- Describe statement profiling
- Use SQL Tuning Advisor

Using SQL Access Advisor

- Use SQL Access Advisor

Automating SQL Tuning

- Use Automatic SQL Tuning

SQL Plan Management

- Manage SQL performance through changes
- Set up SQL Plan Management
- Set up various SQL Plan Management scenarios

Using Optimizer Hints

- Use hints when appropriate
- Specify hints for Optimizer mode, Query transformation, Access path, Join orders, Join methods and Views

Parallel Queries

Parallel Processing Concepts

- Explain what parallel processing is and why is it useful

Basics of Parallel Execution

- Describe operations that can be parallelized
- Explain parallel execution theory
- Understand impact of initiali zation parameter on parallel execution

Manual DOP Management

- Understand an explain plan of a parallel query
- Understand an explain plan of parallel DML and DDL

Simplified Auto DOP

- Understand the new parameters of Auto DOP
- Explain when to use Auto DOP
- Use Auto DOP

Statement Queuing

- Explain statement queuing, concurrency and DBRM

In-Memory Parallel execution
- Use in-memory parallel execution

Data Warehouse Administration

Partitioning Concepts
- Explain the available partitioning strategies
- Explain partition pruning
- Implement partition enhancements in star query optimization

Materialized Views
- Use summaries to improve performance
- Differentiate materialized view types

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