Oracle Database 10g: SQL Tuning

Duration: 0 Days

What you will learn

This course, delivered as a self-study CD-ROM, familiarizes learners with various tuning methodologies for optimizing SQL performance and improving response time and scalability. This course offers the tips and tricks for proactively tuning Oracle databases and optimizing SQL performance.

Students gain an understanding of the new automatic tuning methods included in the Oracle 10g release, together with the manual tuning steps used in previous releases. Students are then taken through a thorough review of Oracle Optimizer, including how to change the physical schema and modify SQL statement syntax. Learn how to use Oracle diagnostic tools and facilities, including EXPLAIN, SQL Trace and TKPROF, SQL *Plus AUTOTRACE.

Throughout the course, students experience SQL tuning of an Oracle 10g Database through a series of simulated demonstrations.

Audience
Business Intelligence Developer
Forms Developer
Java Developer
PL/SQL Developer
Reports Developer
Technical Consultant

Course Objectives
Describe Automatic SQL Tuning

Describe the basic steps in processing SQL statements

Describe the causes of performance problems

Influence the optimizer behavior

Influence the physical data model so as to avoid performance problems

Understand Optimizer behavior

Understand where SQL tuning fits in an overall tuning methodology

Use the diagnostic tools to gather information about SQL statement processing

Course Topics
Database Architecture Overview
Overview of Database architecture
Listing the SQL Statement Processing Steps
Identifying Means to Minimize Parsing
Stating the Use of Bind Variables

Following a Tuning Methodology
Describing the Causes of Performance Problems
Identifying Performance Problems
Using a Tuning Methodology

Designing Applications for Performance
Oracle Methodology
Understanding Scalability
System Architecture
Application Design Principles
Deploying New Applications

Introducing the Optimizer
Describe the functions of the Oracle optimizer
Identify the factors that the optimizer considers when it selects an execution plan
Set the optimizer approach at the instance and session level
Use dynamic sampling

Optimizer Operations
Execution plans
Types of Joins

Displaying Execution plans
Using the EXPLAIN PLAN Command
Interpreting EXPLAIN Output
Interpreting AUTOTRACE Statistics

Gathering Statistics
Using the DBMS_STATS Package
Identifying Table, Column, and Index Statistics
Building Histograms

Application Tracing
Statspack
End to End tracing
Invoking the SQL Trace Facility
Setting Up Appropriate Initialization Parameters
Formatting Trace Files with TKPROF
Interpreting the Output of the TKPROF Command

Identifying High Load SQL
Using different methods to identify high-load SQL
ADDM
Top SQL
Dynamic Performance views
Statspack
Automatic SQL Tuning
Query Optimizer Modes
Types of Tuning Analysis
SQL Tuning Advisor
SQL Tuning Sets
Top SQL

Introduction to Indexes
Identifying Row Access Methods
Creating B-Tree Indexes
Understanding B-Tree Index Access and Index Merging

Advanced Indexes
Using Bitmapped Indexes
Using Function-Based Key Indexes

Optimizer Hints and Plan Stability
Using Hints
Purpose and Benefits of Optimizer Plan Stability

Materialized Views and Temporary Tables
Using the CREATE MATERIALIZED VIEW Syntax
Utilizing Query Rewrites