Application Development and Tuning for Oracle® Databases - 5 Days

Course 492 Overview

You Will Learn How To

• Design and implement efficient applications while incorporating Oracle features
• Load data into Oracle databases using SQL*Loader or external tables
• Maintain and secure the database with advanced techniques
• Enhance applications with key Oracle-provided packages
• Improve query performance using the Oracle-provided toolset

Who Should Attend

Developers and others interested in increasing the performance and efficiency of their Oracle database applications who have working knowledge of SQL and PL/SQL as well as experience with a SQL-based RDBMS.

Hands-On Experience

Includes:

• Loading data into an Oracle database
• Automating processing with job scheduling
• Utilizing performance diagnostic tools
• Influencing the cost-based optimizer to improve performance
• Leveraging storage techniques and advanced indexing methodologies
• Enhancing performance with Real-Time SQL Monitoring

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Course 492 Outline

Introduction to the Application Environment

The Oracle database environment
- Reviewing basic architecture concepts
- Examining existing databases using the Data Dictionary

Database design considerations
- Managing basic storage structures
- Enhancing performance with optional storage structures

Preparing the Database

Populating the database
- Loading data from other sources using SQL*Loader
- Writing to external tables using Data Pump
- Upgrading to Data Pump with legacy mode

Maintaining the application schema
- Implementing best practices for PL/SQL structures
- Generating DDL for existing objects

Exploiting Oracle Built-In Packages

Automating routine processing
- Scheduling routines with Oracle Scheduler
- Starting jobs based on system or application events
- Grouping scheduled jobs

Handling other media types
- Programming with LOBs
- Providing transparent compression, encryption and deduplication with SecureFiles

Maintaining the Database

Applying advanced programming techniques
- Developing modular code using packages
- Managing default, serializable and autonomous transactions
- Resolving potential trigger problems

Securing the database
- Enforcing security using PL/SQL
- Implementing row-level security applications
- Controlling access with Oracle Label Security

Upgrading the application
- Building a new application version using Edition-Based Redefinition
- Implementing the new version

Improving Query Performance

Identifying basic tuning techniques
- Developing a tuning methodology
- Planning and managing the tuning process

Employing tuning tools
- Running EXPLAIN PLAN and autotrace
- SQL Trace and TKPROF output

Query tuning techniques
- Optimizing join operations
- Partitioning data to improve access to frequently used data
- Storing rows in sorted sequence with sorted hash clusters

Deciphering and Controlling the Optimizer

Optimizer concepts
- Gathering system statistics with DBMS_STATS
- Managing low-selectivity columns with histograms

Influencing the optimizer
- Utilizing hints and optimizer mode
- Determining the driving table

Tuning the Application

Optimizing performance
- Exploring B-Trees
- Bitmapped, function-based and other indexing options
- Partitioning indexes with virtual columns
- Monitoring index usage with invisible indexes

Tuning with the automated tools
- Tuning SQL with the SQL Tuning Advisor and the SQL Access Advisor
- Identifying performance problems with Real-Time SQL Monitoring

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