



Oralogic Education Systems

Next Generation IT Education Systems

Introduction:

In the Oracle Database 12c: Performance Management and Tuning course, learn about the performance analysis and tuning tasks expected of a DBA: proactive management through built-in performance analysis features and tools, diagnosis and tuning of the Oracle Database instance components, and diagnosis and tuning of SQL-related performance issues. In this course, you will be introduced to Oracle Database Cloud Service.

The DBA will analyze the SQL performance with available tools. The DBA will be introduced to various methods of identifying the SQL statements that require tuning and the diagnostic tools used to find ways to improve performance. This will include the use of statistics, profiles to influence the optimizer, and using the SQL Advisors.

Oralogic Education Systems provide quality education in this key technology. We have most experienced professional who have extensive experience in managing and configuring Oracle Database software in most mission critical environments.

Course Contents:

Introduction

- Course Objectives
- Course Organization
- Course Agenda
- Topics Not Included in the Course
- Who Tunes?
- What Does the DBA Tune?
- How to Tune
- Tuning Methodology

Basic Tuning Diagnostics

- Performance Tuning Diagnostics
- Performance Tuning Tools
- Tuning Objectives
- Top Timed Events
- DB Time
- CPU and Wait Time Tuning Dimensions
- Time Model
- Dynamic Performance Views

Using Automatic Workload Repository

- Automatic Workload Repository Overview
- Automatic Workload Repository Data
- Enterprise Manager Cloud Control and AWR
- Snapshots
- Reports
- Compare Periods

Defining the Scope of Performance Issues

- Defining the Problem
- Limiting the Scope
- Setting the Priority
- Top SQL Reports
- Common Tuning Problems
- Tuning During the Life Cycle
- ADDM Tuning Session
- Performance Versus Business Requirements

Using Metrics and Alerts

- Metrics and Alerts Overview
- Limitation of Base Statistics
- Benefits of Metrics
- Viewing Metric History Information
- Viewing Histograms
- Server-Generated Alerts
- Setting Thresholds
- Metrics and Alerts Views

Using Baselines

- Comparative Performance Analysis with AWR Baselines
- Automatic Workload Repository Baselines
- Moving Window Baseline
- Baselines in Performance Page Settings
- Baseline Templates
- AWR Baseslines
- Creating AWR Baselines
- Managing Baselines with PL/SQL

Using AWR-Based Tools

- Automatic Maintenance Tasks

- ADDM Performance Monitoring
- Using Compare Periods ADDM
- Active Session History
- New or Enhanced Automatic Workload Repository Views
- Emergency Monitoring
- Real-time ADDM

Real-Time Database Operation Monitoring

- Overview
- Use Cases
- Defining a Database Operation
- Scope of a Composite Database Operation
- Database Operation Concepts
- Identifying a Database Operation
- Enabling Monitoring of Database Operations
- Identifying, Starting, and Completing a Database Operation

Monitoring Applications

- What is a Service?
- Service Attributes
- Service Types
- Creating Services
- Managing Services in a Single-Instance Environment
- Where are Services Used?
- Using Services with Client Applications
- Services and Pluggable Databases

Identifying Problem SQL Statements

- SQL Statement Processing Phases
- Role of the Oracle Optimizer
- Identifying Bad SQL
- Top SQL Reports
- SQL Monitoring
- What is an Execution Plan?
- Methods for Viewing Execution Plans
- Uses of Execution Plans

Influencing the Optimizer

- Functions of the Query Optimizer
- Selectivity
- Cardinality and Cost

- Changing Optimizer Behavior
- Optimizer Statistics
- Extended Statistics
- Controlling the Behavior of the Optimizer with Parameters
- Enabling Query Optimizer Features

Reducing the Cost of SQL Operations

- Reducing the Cost
- Index Maintenance
- SQL Access Advisor
- Table Maintenance for Performance
- Table Reorganization Methods
- Space Management
- Extent Management
- Data Storage

Using SQL Performance Analyzer

- Real Application Testing: Overview
- Real Application Testing: Use Cases
- SQL Performance Analyzer: Process
- Capturing the SQL Workload
- Creating a SQL Performance Analyzer Task
- SQL Performance Analyzer: Tasks
- Parameter Change
- SQL Performance Analyzer Task Page

SQL Performance Management

- Maintaining SQL Performance
- Maintaining Optimizer Statistics
- Automated Maintenance Tasks
- Statistic Gathering Options
- Setting Statistic Preferences
- Restore Statistics
- Deferred Statistics Publishing
- Automatic SQL Tuning

Using Database Replay

- Using Database Replay
- The Big Picture
- System Architecture
- Capture Considerations

- Replay Considerations: Preparation
- Replay Considerations
- Replay Options
- Replay Analysis

Tuning the Shared Pool

- Shared Pool Architecture
- Shared Pool Operation
- The Library Cache
- Latch and Mutex
- Diagnostic Tools for Tuning the Shared Pool
- Avoiding Hard Parses
- Reducing the Cost of Soft Parses
- Sizing the Shared Pool

Tuning the Buffer Cache

- Oracle Database Architecture: Buffer Cache
- Buffer Cache: Highlights
- Database Buffers
- Buffer Hash Table for Lookups
- Working Sets
- Buffer Cache Tuning Goals and Techniques
- Buffer Cache Performance Symptoms
- Buffer Cache Performance Solutions

Tuning PGA and Temporary Space

- SQL Memory Usage
- Performance Impact
- Automatic PGA Memory
- SQL Memory Manager
- Configuring Automatic PGA Memory
- Setting PGA_AGGREGATE_TARGET Initially
- Limiting the size of the Program Global Area (PGA)
- SQL Memory Usage

Automatic Memory

- Oracle Database Architecture
- Dynamic SGA
- Granule
- Memory Advisories
- Manually Adding Granules to Components

- Increasing the Size of an SGA Component
- Automatic Shared Memory Management: Overview
- SGA Sizing Parameters: Overview

Performance Tuning Summary with Waits

- Commonly Observed Wait Events
- Additional Statistics
- Top 10 Mistakes Found in Customer Systems
- Symptoms

Oracle Database Cloud Service: Overview

- Database as a Service Architecture, Features and Tooling
- Software Editions: Included Database Options and Management Packs
- Accessing the Oracle Database Cloud Service Console & Automated Database Provisioning
- Managing the Compute Node Associated With a Database Deployment
- Managing Network Access to Database as a Service & Scaling a Database Deployment
- Performance Management in the Database Cloud Environment
- Performance Monitoring and Tuning
- What Can be Tuned in a DBCS Environment?

Other Information:

Course #	DBAPMT01
Instructor	Industry Professional
Course	Oracle Performance Management and Tuning
Version	Oracle11g, 12c
Duration	2 Weeks
Class Duration	3 Session a week, 2 hours
Medium	In-Class, Online