

## Oracle Database 11g: Performance Tuning DBA

### COURSE OVERVIEW

The course starts with an unknown database that requires tuning. The lessons will proceed through the steps a DBA will perform to acquire the information needed to identify problem areas, to diagnose common problems, and remedy those problems. The methodology used in the practices is primarily reactive. After configuring monitoring tools, and reviewing the available reports, the student will be presented with the Oracle architecture based on the SQL statement processing of SELECT and DML.

The SQL tuning section assumes that the DBA has little or no ability to change the code. The DBA will influence 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 needed to find ways to change the performance. This will include the use of statistics, outlines, and profiles to influence the optimizer, adding and rebuilding indexes, and using the SQL Advisors. A major task of DBA's is to maintain SQL performance across changes. This course introduces the DB Replay, and SQL Performance Analyzer tools to help the DBA test and minimize the impact of change.

Instance tuning uses the same general method of observing a problem, diagnosing the problem, and implementing a solution. The instance tuning lessons cover the details of major tunable components and describe how you can influence the instance behavior. For each lesson, we will examine the relevant components of the architecture. The class only discusses the architecture to the level required to understand the symptoms and solutions. More detailed explanations are left to other courses, reference material, and the Oracle documentation.

The last lesson of this course is a recap of the best practices discovered in the previous lessons, and miscellaneous recommendations. The goal is to finish the course with a best practices list for students to take away.

Learn To:

- Describe Oracle tuning methodology
- Use Oracle supplied tools for monitoring, and diagnosing SQL and Instance tuning issues
- Use database advisors to correct performance problems proactively
- Identify problem SQL statements & tune SQL performance problems
- Monitor the Instance Performance using Enterprise Manager
- Tune instance components, primarily using Instance parameters

## TARGET AUDIENCE

- Database Administrators
- Support Engineer
- Technical Consultant

## COURSE OBJECTIVES

- Use the Oracle Database tuning methodology appropriate to the available tools
- Utilize database advisors to proactively tune an Oracle Database Instance
- Use the tools based on the Automatic Workload Repository to tune the database
- Diagnose and tune common SQL related performance problems
- Diagnose and tune common Instance related performance problems
- Use Enterprise Manager performance-related pages to monitor an Oracle Database

## COURSE CONTENT

- Introduction
- Basic Tuning Tools
- Using Automatic Workload Repository
- Defining Problems
- Using Metrics and Alerts
- Using Baselines
- Using AWR Based Tools
- Monitoring an Application
- Identifying Problem SQL Statements
- SQL Statement Processing Phases & Role of the Oracle Optimizer
- Influencing the Optimizer
- Using SQL Performance Analyzer
- SQL Performance Management
- Using Database Replay
- Tuning the Shared Pool
- Tuning the Buffer Cache
- Tuning PGA and Temporary Space
- Automatic Memory Management

- Tuning Segment Space Usage
- Tuning I/O
- Performance Tuning Summary
- Appendix B: Using Statspack