

# Oracle Performance Tuning Course Content

- **Introduction**
  - Cause of Performance Problems
  - Setting Performance Goals
  - The Tuning Cycle
  - ORACLE Architecture
  - Logical Storage Structures
  - Physical Structures
  - Memory Structures
  - The Shared Pool
  - Processes
  - Some Administration Terminology
- **Design**
  - Data Design Phase
  - Data Model Design
  - Online Transaction Processing
  - Decision Support Systems
  - Multi-purpose Applications
- **Optimizing SQL**
  - Physical Retrieval of Data

- Full Table Scan versus Index Reads
- Performance Diagnostic Tools
- Explain Plan
- SQL Trace Facility
- TKPROF
- Autotrace
- Join Methods
- Sort/Merge Joins
- Nested Loops
- Hash Joins
- Hash Join Example Data Access Methods
- **Indexes**
  - Basic Indexes
  - B-Tree Indexes
  - Bitmap Index
  - Comparing B-Tree and Bitmap Indexes
  - Reverse Key Index
  - Index-Organised Tables
  - Invisible index
  - Creating Monitoring and Maintaining Indexes
- **Automatic SQL Tuning**

- Query Optimizer Modes Types of Tuning Analysis
- Automatic workload repository SQL Tuning Advisor SQL Tuning Sets Top SQL
- Identify high - load SQL Dynamic Performance views
- **SQL Performance Analyzer**
  - Describe SQL Performance Analyzer process and benefits
  - Use SQL Performance Analyzer
- **The Optimizer**
  - The ORACLE Optimizer
  - SQL statement parsing
  - Initialisation parameters
  - Rule Based Optimizer
  - Cost Based Optimizer
  - Rule / Cost Comparisons
  - Choosing an Approach
  - Multiple WHERE Clauses
  - Using Indexes for Sorts
  - Multiple Table Joins
  - Disabling Indexes
  - Sharing SQL Statements
  - Sharing Cursors
  - Sharing SQL Statements

- Sharing Cursors
- Adaptive Cursors Sharing
- Other SQL Tuning Tips
- **Gathering Statistics**
  - Analyzing Statistics
  - DBMS\_STATS
  - Automatic Optimizer Statistics Collection
  - Histograms
  - How to Generate Histograms Statistics
- **SQL Plan Management**
  - SQL outlines
  - SQL profiles
  - SQL Access Advisor
  - Set up and use SQL plan baseline
- **Advanced Tuning**
  - Star Queries
  - Materialized Views
  - Refreshing Views
  - Materialized View Logs
  - SQL Result Cache
  - Temporary Tables

- **Statistics and Wait Events**
  - Identify dynamic performance views useful in tuning
  - Identify key tuning components of the alert log file
  - Identify key tuning components of user trace files
  - Use dynamic performance views to view statistics and wait events
- **Metrics, Alerts, and Baselines**
  - View metrics using the metrics history views
  - Create metric thresholds
  - View alerts
  - Create metric baselines
  - Enable adaptive thresholds
- **Using Statspack**
  - Install Statspack
  - Create Statspack snapshots
  - Generate Statspack reports
  - Identify the major sections of the Statspack report
- **Using Statspack**
  - Create and manage AWR snapshots
  - Generate AWR reports
  - Create snapshot sets and compare periods
  - Generate ADDM reports

- Generate ASH reports