



Oracle 9i

(Basic + Advanced)

DBA Track Preparation for OCP with Performance Tuning

Be the best Oracle Fighter



Corporate Trainer's Profile

Corporate Trainers are having the experience of 4 to 12 years in development , working with TOP CMM level 5 companies (Project Leader /Project Manager) qualified from NIT/IIT/IIM and work exp in USA and UK.



CMM (Capability Maturity Model) level Project Standard:-

The Capability Maturity Model (CMM) is a method for evaluating the maturity of organizations on a scale of 1 to 5. Get the Oppertunites to work on Client Projects Of US/UK, which follow the all standard of CMM level 5 Company.

Projects



Introduction to Oracle SQL

Recommended Prerequisite:
Relational Database Basic Concepts

Objectives:

- Understand Relational Database Concepts and Terminology
- Create SQL Statements To Query The Database
- Create SQL Statements Using Functions
- Use SQL*Plus Formatting (Oracle Command-Line Tool)
- Use Scripts To Reuse SQL and PL/SQL Statements
- Create, Alter, Drop Database Objects
- Insert, Update, and Delete Database Data
- Incorporate Business Rules On Data Using Constraints
- Understand Basic User Security

Course Outline:

Overview

- Overview of a Relational Database
- Overview of Oracle RDBMS
- Overview of SQL, SQL/ Plus, And PL/SQL
- SQL Command Categories
- SQL Commands
- SQL/Plus Commands
- Formatting Commands
- PL/SQL Commands
- Anonymous Blocks
- Oracle9i new SQL and PL/SQL Features

Writing Basic SQL Statements

- ANSI SQL Commands
- SQL Statements
- Basic Rules of SQL
- Required Clauses: SELECT and FROM
- Execute a Basic SELECT Statement
- Basic Elimination of Duplicates Command: DISTINCT

Restricting And Sorting Data

- Restrict Participating Rows Using a WHERE Clause with Operators
- Sort The Rows Retrieved By a Query Using ORDER BY

Single Row Functions

- Arithmetic Expressions
- Describe The Use of Single Row Functions
- Character, Number, and Date Functions
- Conversion Functions
- Miscellaneous Functions

Aggregating Data Using Group Functions

- Describe The Use of Group Functions
- Group Functions
- Group Data Using the GROUP BY Clause
- Restrict Participating Groups By Using The HAVING Clause

Subqueries

- Describe Subqueries
- Single-Row And Multiple-Row Subqueries
- Subqueries In the FROM Clause of a SQL Statement
- Subqueries In the HAVING Clause of a SQL Statement
- Multiple-Column Subqueries

Multiple Table Manipulation - Joins and Set Operators

- Access and Display Data From More Than One Table
- Cartesion Product
- Equijoin
- Non-Equijoin
- Outer Join
- Self-Join
- Set Operators: UNION, UNION ALL, INTERSECT, MINUS

Using Variables To Customize Queries

- Describe The Use of Customizing SQL Statements
- Prompting For Input Using The Ampersand
- DEFINE Variables For the Entire Session
- Prompt For and Define Variables For the Session Using the ACCEPT Command

Script Files Using SQL*Plus

- Define Script Files
- Create Script Files
- Edit Script Files
- SPOOL and HOST Command

Formatting Output With SQL*Plus

- Customize The SQL*Plus Session
- Format SQL Output
- Create Reports Using SQL*Plus

Oracle Data Dictionary

- Describe the Data Dictionary
- Discuss the Data Dictionary Tables/Views
- Data Dictionary View Categories: USER, ALL, DBA, V\$

Creating And Managing Tables

- Describe Database Tables
- Naming Rules
- Describe Datatypes
- CREATE TABLE Command
- Describe Constraints
- Create and Maintain Constraints
- Drop, Rename, and Truncate Tables
- Alter Table Definitions

Manipulating Data

- DML Commands
- INSERT, UPDATE, DELETE
- Transaction Control
- COMMIT, ROLLBACK - SAVEPOINT
- Insert Rows Into a Table
- Update Rows Of a Table
- Delete Rows From a Table

Creating Views

- Describe a View
- Create a View
- Use a View To Retrieve Data
- Manipulate Data Through a View
- Drop a View

Other Database Objects

- Describe Other Database Objects
- Create and Maintain Indexes

- Create, Maintain, and Use Sequences
- Create Private and Public Synonyms

Controlling User Access/Security

- Describe Basic Database Security
- Create Users
- GRANT And REVOKE Commands
- Object Privileges
- System Privileges
- Create Roles To Ease Security Maintenance

ORACLE DBA Part-1

Course Topics:

1st DAY:-

1. Introduction

- Course objectives
- Tasks of the Database Administrator

2. Oracle Architecture and Administration

- Oracle's Instance
- Oracle Database
- Establishing a connection to Oracle and creating a session
- Oracle's SGA
- The shared pool cache
- The library cache
- The dictionary cache
- The database buffer cache
- Redo log buffer cache
- User processes
- Server processes
- Oracle Background processes
- Logical structures
- User Processing of SQL statements
- Processing SQL
- Summary and lab

2nd DAY:-

3. Getting Started

- Objectives
- DBA Tools
- Oracle universal installer
- Oracle oradim utility
- Oracle SQL*Plus
- OEM
- Summary and lab

4. Managing an Oracle Instance

- Objectives
- Initialization parameter file
- Creating a PFILE
- Oracle9i SPFILE
- Creating and managing an SPFILE
- Oracle STARTUP using PFILE or SPFILE
- Modifying parameters in SPFILE
- Instance STARTUP commands
- Instance SHUTDOWN commands
- Oracle database alert and trace files

Summary and lab

3rd DAY:-

5. Creating an Oracle Database

Objectives

Managing and Organizing an Oracle database

OFA-Optimal Flexible Architecture

Creation requirements

Authentication methods for DBAs

Using an external password file

Creating an Oracle database

OS environmental variables

DBCA tool to create an Oracle database Creating a database from command line manually

Creating an Oracle database using OMF (Oracle managed files)

Troubleshooting create database operations

Summary and lab

6. Data Dictionary and Dynamic Performance Views

Objectives

Built-in database objects

The Oracle Data Dictionary

Creating dictionary views

Data dictionary contents

Dynamic views

Administrative scripts and dictionary naming conventions

Summary and lab

7. Oracle Control File Management

Objectives

Control file and the Oracle Architecture

Creating multiple control files

Managing the control file using OMF

Querying control file information

Summary and lab

4th DAY:-

8. Managing the Online Redo Logs

Objectives

Overview of Oracle's online redo logs

How redo logs operate

Forcing log switches and checkpoints

Adding log groups

Adding log members

Dropping redo log groups and members

Relocating /renaming redo logs

Online redo log file configuration

Using OMF with online redo logs

Querying redo log dictionary information

Archiving redo logs

Summary and lab

9. Managing Oracle Tablespaces and Datafiles

Objectives

Overview of Oracle tablespaces and datafiles

Oracle tablespace types

Creating Oracle tablespaces

Oracle tablespace space management

Locally managed tablespaces

Dictionary-managed tablespaces

Undo tablespace

Temporary tablespaces

Default temporary tablespace

Tablespace operations

Summary and lab

5th DAY:-

10. Storage Structure and Relationships

- Objectives
- Overview of Oracle storage structure
- Oracle segments
- Storage clause precedence
- Extent management
- Used and free extents
- Oracle database blocks
- Oracle multiple blocksize support
- Standard and non-standard block sizes
- Creating tablespaces with a non-standard block size
- Anatomy of an Oracle database block
- Automatic segment space management feature
- Configuring for ASM
- Manual block management
- Obtaining segment and tablespace storage information
- Summary and lab

11. Oracle Undo Management

- Objectives
- Managing undo data
- Undo segment management
- Undo support for read consistency and data concurrency
- Undo space statistics
- Summary and lab

6th DAY:-

12. Oracle Table Segments

- Objectives
- Tables for data storage
- Oracle built-in data types
- Structure of a table row
- Creating Oracle tables
- Creating temporary tables
- Table PCTFREE and PCTUSED parameters
- Row migration and row chaining
- Alerting table storage
- Manual extent allocation and deallocation
- Table reorganization
- Table operations (drop/alter/truncate/drop columns)
- The UNUSED option for table columns
- Dictionary queries for table information
- Summary and lab

13. Oracle Index Segments

- Objectives
- Classes of Oracle indexes
- B-Tree indexes
- Bitmap indexes
- Bitmap join indexes
- Creating Oracle indexes
- Allocating and deallocating index extents
- Changing index storage parameters
- Rebuilding indexes (online)
- Coalescing indexes
- Validating indexes
- Identifying UNUSED indexes and dropping indexes
- Dictionary views for index information
- Summary and lab

7th DAY:-**14. Managing Data Integrity with Constraints**

- Objectives
- Overview of Constraints and Data Integrity
- Types of Constraints
- Constraint states and checking of constraints
- Defining constraints inline and out-of-line
- Defining constraints immediate or deferred
- Enabling and disabling constraints
- The EXCEPTIONS Table and constraints
- Dictionary views for constraint information
- Summary and lab

15. Password Management

- Objectives
- Profiles
- Password management
- Creating a profile: password settings
- Altering or dropping a profile
- Resource management
- Enabling resource limits
- Resource plan directives
- Summary and lab

8th DAY:-**16. Managing Oracle Users**

- Objectives
- Creating Users
- User authentication options
- User quotas on tablespaces
- Dropping a user
- Dictionary views for user information
- Summary and lab

17. Managing Oracle User Privileges

- Objectives
- Managing privileges
- System privileges
- Object privileges
- Special privileges
- Granting and revoking privileges
- Dictionary information on user privileges
- Summary and lab

18. Managing Oracle Roles

- Objectives
- ROLES
- Benefits of using roles for privilege management
- Predefined roles in Oracle
- Role creation and management
- Dictionary information for role management
- Summary and lab

9th DAY:-**19. Oracle Auditing**

- Objectives
- Overview of Oracle Auditing
- Audit categories
- Audit management
- Obtaining audit record information
- Summary and lab

20. Oracle SQL*LOADER Utility

- Objectives
- Data loading techniques
- Direct load
- Serial direct load
- Parallel direct load
- SQL*LOADER utility
- SQL*LOADER guidelines
- Summary and lab

10th DAY:-

21. Oracle Globalization Support

- Objectives
- Globalization Support features
- Encoding schemas
- Database character sets and national character sets
- Guidelines for choosing character sets
- Import and loading data using NLS
- Dictionary views for NLS information
- Summary and lab

ORACLE DBA-Part-II

Course Topics:

DAY 1st :-

1. Networking Overview

- Objectives
- Networking Environments
- Simple Networks
- N-tier networks
- Oracle Net features
- Scalability using Oracle Shared Server
- Oracle Net Advanced Security Option
- Oracle Net Configuration Assistant GUI
- Oracle Net Manager
- Summary and lab

2. Oracle Net Architecture

- Objectives
- Oracle Net Connections
- Establishing C/S connections w/o a middle tier
- Web client connections
- Web client connections: JAVA
- Web client connection: no middle tier
- Oracle Net configuration models
- Oracle Net configuration Files
- Summary and Lab

DAY 2nd :-

3. Oracle Net Server Side Configuration

- Objectives
- Oracle's Listener Process
- Oracle Net Connection Methods
- Listener hand-off options
- Redirect session
- Service Configuration and Registration
- Creating a Listener
- Configure Services
- The LSNRCTL utility

Logging and tracing

Summary and lab

4. Oracle Net Naming Methods

Objectives

Overview of Oracle Net Naming Methods

Host Naming

Local Naming

Configuring local net service names

Testing the connection

Troubleshooting the client side

Summary and lab

DAY 3rd :-

5. Oracle Shared Server

Objectives

Oracle Shared Server Architecture

Configuring Oracle for Shared Server

Benefits of Shared Server

Dedicated connections and Shared Server

SGA and PGA configurations for Shared Server

Dictionary views for performance tuning Shared Server

Summary and Lab

6. Backup and Recovery Overview

Objectives

Backup and Recovery Issues

Types and classes of failures in Oracle

Recovering from failures

Defining a Backup and Recovery Strategy

Summary and lab

DAY 4th :-

7. Oracle Instance and Media Recovery Structures

Objectives and overview

SGA memory components

Background Processes

Instance recovery considerations and parameters

Tuning the instance recovery process

Summary and lab

8. Configuring Oracle Database - Archiving Options

Objectives

Oracle's Redo Log History

NOARCHIVE LOG MODE

ARCHIVE LOG MODE

Changing archive log modes

Multiple archive log processes

Specifying multiple archive log destinations

Log Archive format

Dictionary views

Summary and Lab

DAY 5th :-

9. Oracle Recovery Manager (RMAN)

Objectives

Overview of Oracle's RMAN Utility

RMAN features

RMAN components

RMAN configuration settings

RMAN Packages

RMAN Usage considerations

Summary and lab

DAY 6th :-**10. Standard User Managed Backups**

- Objectives
- User Managed Backup and Recovery
- Dictionary Views
- Backup Methods
- Open Database Backups
- Backup Status Information
- Read-only tablespace backups
- Backup Issues with logging or nologging options
- Control File Backups
- DBVERIFY Utility
- Summary and lab

11. RMAN Backups

- Objectives
- RMAN Backup Concepts
- RMAN Backups
- RMAN Incremental Backups
- Backup in NoArchive log mode
- Backup in Archive log mode
- RMAN Controlfile backups
- Monitoring RMAN backups
- Other RMAN backup issues and concerns
- Summary and lab

DAY 7th :-**12. Standard User-Managed Complete Recovery**

- Objectives
- Media Recovery
- Recovery Steps
- Archive Log and NoArchive Log Modes
- Recovery in NoArchiveLog Mode with Redo Log backups
- Recovery in NoArchiveLog Mode without Redo Logs
- Recovery in Archive Log Mode
- Complete Recovery in Archive Log Mode
- Closed Database Recovery
- Open Database Recovery
- Recreating Lost Datafiles without a backup
- Read Only Tablespace Recovery
- Loss and Recovery of Control Files
- Summary and lab

13. RMAN Complete Recovery

- Objectives
- Datafile Restoration and Media Recovery in RMAN
- RMAN Recovery in Archive Log Mode
- Using RMAN to restore datafiles to a new location
- Tablespace and Datafile Recovery using RMAN
- Using RMAN to relocate a Tablespace
- Summary and lab

DAY 8th :-**14. User-Managed Incomplete Recovery**

- Objectives
- Situations requiring incomplete recovery
- Types of Incomplete Recovery
- Incomplete Recovery Guidelines
- Incomplete Recovery and the Alert Log
- User-managed procedures for incomplete recovery
- Recovery: until time, until cancel, until scn
- Recovery using the backup control file

- Recovery after loss of online redo logs
- Summary and lab

15. RMAN Incomplete Recovery

- Objectives
- Incomplete Recovery Using RMAN
- Incomplete Recovery options in RMAN
- Summary and lab

DAY 9th :-

16. RMAN Maintenance

- Objectives
- RMAN Crosscheck command
- RMAN Delete command
- RMAN Retention Policies
- RMAN Catalog and Change ... Keep commands
- Dictionary views for user information
- Summary and lab

17. RMAN Catalog Creation and Maintenance

- Objectives
- Catalog Contents
- Benefits of Using the RMAN Catalog
- Catalog Maintenance
- RESYNCH of the RMAN Catalog
- Resetting the database incarnation
- RMAN Scripts
- Backup/Recovery of the RMAN Catalog
- Summary and lab

DAY 10th :-

18. Transporting Data Between Databases

- Objectives
- Export and Import Utilities
- Direct-Path Exports
- Uses of the Import Utility for Recovery
- Globalization Support Considerations
- Summary and lab

19. Workshop on Oracle Net Troubleshooting

- Objectives
- Resolving Network Failure Problems
- Enable Tracing on Oracle Net
- Using Oracle Net Trace Files
- SQL*LOADER Guidelines
- Summary and lab

ORACLE PT

Course Topics:

DAY 1st :-

Overview of Oracle 9i Database Performance Tuning

- Tuning questions, phases, and goals
- Common performance problems
- Tuning during development
- Tuning steps for a production database
- Performance and availability trade-offs

Diagnostic and Tuning Tools

- Log and trace files
- Tuning with Oracle Enterprise Manager
- Statspack
- Statistics, troubleshooting data, and performance data in the data dictionary

- Database and self-built performance statistics collection
- Collecting performance statistics with assorted tools

DAY 2nd :-

Database Configuration and I/O Issues

- Distributing files across devices
- Tablespace considerations
- Full table scan performance
- Checkpoint performance
- Redo management and performance
- Analyzing I/O activity
- Analyzing checkpoint performance

DAY 3rd :-

Tuning the Shared Pool

- Shared pool components and latches
- Monitor and tune the library cache
- Manage SQL statements and PL/SQL blocks to improve library cache performance
- Monitor and tune the data dictionary cache
- Reserved pool and large pool management
- Using diagnostic tools to monitor and tune the shared pool

DAY 4th :-

Tuning the Buffer Cache

- Buffer cache sizing parameters
- Buffer cache advisory
- Buffer cache tuning views and statistics
- Buffer caches for different purposes and non-standard block sizes
- Automatic segment space and free space management
- Multiple database writing processes
- Monitoring and tuning database buffer cache with available diagnostic tools

DAY 5th :-

Dynamic Instance Resizing

- Dynamic allocation units in the SGA
- Resize SGA components
- Resizing the buffer cache and the shared pool

Sizing Other SGA Structures

- Manage redo log buffer
- Control redo operations
- Manage Java pool memory
- Managing the redo log buffer

Tuning the Oracle Shared Server

- Use and performance of shared server processes
- Shared servers and memory usage
- Monitor and troubleshoot shared server activity

DAY 6th :-

Optimizing Sort Operations

- Automatic PGA memory management
- PGA sizing advisor
- Sorts and temporary segments
- Tuning, diagnostics, and guidelines for sorts
- Reduce sorting
- Configuring and monitoring sort space options
- Configuring automatic PGA memory management

Using Resource Manager

- Database Resource Manager concepts
- Administering the Database Resource Manager
- Define resource plans limits
- Assigning users to consumer groups
- Manual and automatic consumer group switching
- Examine resource plan information in the data dictionary

DAY 7th :-

SQL Statement Tuning

- Optimizer modes
- Hints
- Plan stability and stored outlines
- SQL tuning diagnostic tools
- Interpret results from SQL tuning diagnostic tools

Managing Statistics

- Automatic segment-level statistics collection
- Dynamic sampling
- Table statistics, index statistics, and index tuning wizard
- Column statistics and histograms
- Estimated statistics and automatic statistics collection
- Optimizer cost model
- System statistics
- Copying statistics between databases

DAY 8th :-

Using Oracle Blocks Efficiently

- Database storage components
- Extent management
- High water-mark
- Space management for tables
- Index management

Using Oracle Data Storage Structures Efficiently

- Data storage structures
- Selecting physical storage characteristics for performance
- Data access methods and structures

DAY 9th :-

Application Tuning

- Role of the database administrator
- Table movement and redefinition
- Creating and managing indexes and index-organized tables
- Statistics collection
- Considerations for OLTP systems
- Considerations for decision support systems and data warehouses
- Considerations for hybrid systems

Using Materialized Views

- Create and refresh materialized views
- Nested materialized views
- Query rewrites
- The DBMS_MVIEW package

DAY 10th :-

Monitoring and Detecting Lock Contention

- Locking mechanisms and management
- Data concurrency
- Enqueues and lock types
- Lock monitoring and resolution of conflicts
- Deadlocks
- Use diagnostic tools to monitor lock contention

Tuning the Operating System

Soft Copy available for

1. Core Java + Advance Java + J2EE + Struts + Hibernate
2. Dotnet - Visual Studio - 2008
2. Embedded System + Mobil Communication Application
3. TESTING
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sap@miracleindia.com
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