Oracle

Objective: Oracle has many advantages and features that makes it popular and thereby makes it as the world's largest enterprise software company. Oracle is used for almost all large application and one of the main applications in which oracle takes its major presence is banking. In fact ten of the world's top 10 banks run Oracle applications this is because oracle offers a powerful combination of technology and comprehensive, integrated business applications, including key functionality built specifically for banks. After studying this course student should be able to do the following:

Install, create, and administer Oracle Database 10g
Configure the database for an application
Employ basic monitoring procedures
Implement a backup and recovery strategy
Move data between databases and files

Brief Course Content
This course can be done in modular form as per the detail below

Module	Module Name	Duration	Fees
ORA-1	Oracle Database 10g: SQL	4 Weeks	4000/-
ORA-2	Oracle Database 10g: Administration	4 Weeks	5000/-

Module 1: Oracle Database 10g: SQL (ORA-1)

Module 2: Oracle Database 10g: DBA (ORA-2)

Relational Databases & SQL

About relational databases

Elements of SQL

Using SQL*Plus

About SQL*Plus

Using the ms windows SQL*Plus tool

Using the iSQL*Plus web tool

Entering commands & syntax

Building a select statement

About the select statement

Selecting columns

Using alias names

Building a where clause

About logical operators

Equality operator

Complex table reference

Introduction

Oracle Database Architecture , Database Structures, Oracle Memory Structures ,Process Structures, Oracle Instance Management, Server Process and Database Buffer Cache, Physical Database Structure, Tablespaces and Data Files, SYSTEM and SYSAUX Tablespaces, Segments, Extents, and Blocks, Logical and Physical Database Structures, Course Examples: The HR Schema, Database Architecture: Summary of Structural Components, Summary.

Installing the Oracle Database Software

Tasks of an Oracle Database Administrator Tools Used to Administer an Oracle Database Installation: System Requirements Checking the System Requirements Optimal Flexible Architecture (OFA) Using Optimal Flexible Architecture Setting Environment Variables,Oracle Universal Installer (OUI),Installing the Oracle Software,Database Configuration Options,Executing Configuration Scripts,Completing Your Installation,Advanced Installation Options,Installation Option: Silent Mode,Summary,Practice Overview: Installing the Oracle Software.

Creating an Oracle Database

Planning the Database , Database Configuration Assistant (DBCA) Using the DBCA to Create a Database Password Management, Creating a Database Design Template, Using the DBCA to Delete a Database, Summary, Practice Overview: Using the DBCA.

Managing the Oracle Instance

Management Framework Starting and Stopping Database Control Oracle Enterprise Manager Accessing Oracle Enterprise Manager Database Home Page Using SQL*Plus and iSQL*Plus to Access Your Database Using iSQL*Plus Setting Up iSQL*Plus for SYSDBA and SYSOPER Access, Using SQL*Plus, Calling SQL*Plus from a Shell Script, Calling a SQL Script from SQL*Plus, Initialization Parameter Files, Simplified Initialization Parameters, Viewing and Modifying Initialization Parameters, Database Startup and Shutdown, Starting Up an Oracle Database Instance, Starting Up an Oracle Database Instance: NOMOUNT, Starting Up an Oracle Database Instance: MOUNT, Starting Up an Oracle Database Instance: OPEN, Shutting Down an Oracle Database Instance, Shutdown Modes, SHUTDOWN Options, Using SQL*Plus to Start Up and Shut Down, Viewing the Alert Log, Viewing the Alert History, Dynamic Performance Views, Dynamic Performance Views: Usage Examples, Dynamic Performance Views: Considerations, Summary, Practice Overview: Managing the Oracle Instance.

Managing Database Storage Structures

Storage Structures How Table Data Is Stored Anatomy of a Database Block Tablespaces and Data Files Oracle Managed Files (OMF) Space Management in Tablespaces Exploring the Storage Structure Creating a New Tablespace, Storage for Locally Managed Tablespaces, Tablespaces in the Preconfigured Database, Altering a Tablespace, Actions with Tablespaces, Dropping Tablespaces, Viewing Tablespace Information, Gathering Storage Information, Viewing Tablespace Contents, Enlarging the Database, What Is Automatic Storage Management?, ASM: Key Features and Benefits, ASM: Concepts, Summary, Practice Overview: Managing Database Storage Structures.

Administering User Security

Database User Accounts Predefined Accounts: SYS and SYSTEM Creating a User Authenticating Users Administrator Authentication Unlocking a User Account and Resetting the Password, Privileges, System Privileges, Object Privileges, Revoking System Privileges with ADMIN OPTION, Revoking Object Privileges with GRANT OPTION, Benefits of Roles, Assigning Privileges to Roles and Roles to Users, Predefined Roles, Creating a Role, Secure Roles, Assigning Roles to Users, Profiles and Users, Implementing Password Security Features, Creating a Password Profile, Supplied Password Verification Function: VERIFY_FUNCTION, Assigning Quota to Users, Summary, Practice Overview: Administering Users.

Managing Schema Objects

What Is a Schema? Accessing Schema Objects Naming Database Objects Specifying Data Types in Tables Creating and Modifying Tables, Understanding Data Integrity, Defining Constraints, Constraint Violations, Constraint States, Constraint Checking, Creating Constraints with SQL: Examples, Viewing the Columns in a Table, Viewing the Contents of a Table, Actions with Tables, Dropping a Table, Truncating a Table, Indexes, Types of Indexes, ee Index, Bitmap Indexes, Index Options, Creating Indexes, What Is a View?, Creating Views, Sequences, Creating a Sequence, Using a Sequence, Temporary Tables, Temporary Tables: Considerations, Data Dictionary: Overview, Data Dictionary Views, Data Dictionary: Usage Examples, Summary, Practice Overview: Administering Schema Objects.

Managing Data and Concurrency

Manipulating Data Through SQL The INSERT Command The UPDATE Command The DELETE Command The MERGE Command The COMMIT and ROLLBACK Commands PL/SQL, Administering PL/SQL Objects, PL/SQL Objects, Functions, Procedures, Packages, Package Specification and Body, Buil Packages, Triggers, Triggering Events, Locks, Locking Mechanism, Data Concurrency, DML Locks, Enqueue Mechanism, Lock Conflicts, Possible Causes of Lock Conflicts, Detecting Lock Conflicts, Resolving Lock Conflicts, Resolving Lock Conflicts Using SQL, Deadlocks, Summary, Practice Overview: Managing Data and Concurrency.

Managing Undo Data

Data Manipulation Undo Data Transactions and Undo Data Storing Undo Information Undo Data Versus Redo Data Monitoring Undo Administering Undo, Configuring Undo Retention, Guaranteeing Undo Retention, Sizing the Undo Tablespace, Using the Undo Advisor, Summary, Practice Overview: Managing Undo Segments.

Implementing Oracle Database Security

Industry Security Requirements, Separation of Responsibilities , Database Security , Principle of Least Privilege , Applying the Principle of Least Privilege, Monitoring for Suspicious Activity, Standard Database Auditing, Enabling Auditing, Uniform Audit Trails, Enterprise Manager Audit Page, Specifying Audit Options, Using and Maintaining Audit Information, Valu sed Auditing, Fin ained Auditing, FGA Policy,

Audited DML Statement: Considerations, FGA Guidelines, DBA Auditing, Maintaining the Audit Trail, Security Updates, Applying Security Patches, Summary, Practice Overview: Implementing Oracle Database Security.

Configuring the Oracle Network Environment

Oracle Net Services, Oracle Net Listener, Establishing Net Connections, Establishing a Connection, User Sessions, Tools for Configuring and Managing the Oracle Network, Listener Control Utility, Listener Control Utility Syntax, Listener Home Page, Net Services Administration Pages, Creating a Listener, Adding Listener Addresses, Database Service Registration, Naming Methods, Easy Connect, Local Naming, Directory Naming, External Naming Method, Configuring Service Aliases, Advanced Connection Options, Testing Oracle Net Connectivity, User Sessions: Dedicated Server, User Sessions: Shared Servers, SGA and PGA, Shared Server: Connection Pooling, When Not to Use a Shared Server, Summary, Practice Overview: Working with Oracle Network Components.

Proactive Maintenance

Proactive Maintenance, Introducing Terminology, Optimizer Statistics, Using the Manage Optimizer Statistics Page, Statistic Levels, Automatic Workload Repository (AWR), AWR Infrastructure, AWR Snapshot Sets, Enterprise Manager and AWR, Managing the AWR, Automatic Database Diagnostic Monitor (ADDM), ADDM Findings, ADDM Recommendations, Advisory Framework, Enterprise Manager and Advisors, The DBMS_ADVISOR Package, Serve nerated Alerts, Default Serve nerated Alerts, Setting Thresholds, Creating and Testing an Alert, Alerts Notification, Reacting to Alerts, Alert Types and Clearing Alerts, Automated Maintenance Tasks, Summary, Practice Overview: Proactive Maintenance.

Performance Management

Performance Monitoring, Performance Monitoring: Top Sessions, Performance Monitoring: Top Services, SQL Tuning Advisor: Overview, SQL Tuning Advisor Options and Recommendations, Using the SQL Tuning Advisor, Using the SQL Tuning Advisor: Example, SQL Tuning Advisor: SQL Statistics, SQL Tuning Advisor: Identifying Duplicate SQL, Using the SQL Access Advisor, Managing Memory Components, Enabling Automatic Shared Memory Management (ASMM), Manually Setting Shared Memory Management, Using the Memory Advisor, Dynamic Performance Statistics, Troubleshooting and Tuning Views, Invalid and Unusable Objects, Summary, Practice Overview: Monitoring and Improving Performance.

Backup and Recovery Concepts

Categories of Failures, Statement Failure, User Process Failure, Network Failure, User Error, Instance Failure, Background Processes and Recovery: Checkpoint (CKPT), Background Processes and Recovery: Redo Log Files and LogWriter, Background Processes and Recovery: Archiver (ARCn), Instance Recovery, Phases of Instance Recovery, Tuning Instance Recovery, Using the MTTR Advisor, Media Failure, Configuring for Recoverability, Control Files, Redo Log Files, Multiplexing the Redo Log, Archive Log Files, Archive Log File: Naming and Destinations, ARCHIVELOG Mode, Summary, Practice Overview: Configuring for Recoverability.

Performing Database Backups

Backup Solutions: Overview, Oracle Secure Backup, Use naged Backup, Terminology, Recovery Manager (RMAN), Configuring Backup Settings, Scheduling Backups: Strategy, Scheduling Backups: Options, Scheduling Backups: Settings, Scheduling Backups: Schedule, Scheduling Backups: Review, Backing Up the Control File to a Trace File, Managing Backups, Flash Recovery Area, Summary, Practice Overview: Creating Database Backups.

Performing Database Recovery

Opening a Database, Changing Instance Status, Keeping a Database Open, Loss of a Control File, Loss of a Redo Log File, Loss of a Data File in NOARCHIVELOG Mode, Loss of a Noncritical Data File in ARCHIVELOG Mode, Loss of a Syste itical Data File in ARCHIVELOG Mode, Summary, Practice Overview: Performing Database Recovery.

Performing Flashback

Flashback Technology: Benefits, When to Use the Flashback Technology, Flashing Back Any Error, Flashback Database: Overview, Flashback Database: Reducing Restore Time, Flashback Database: Considerations, Flashback Database: Limitations, Enabling Flashback Database, Flashback Table: Overview, Flashback Table, Enabling Row Movement on a Table, Performing Flashback Table, Flashback Table: Considerations, Flashback Drop: Overview, Flashing Back Dropped Tables Through Enterprise Manager, Flashback Drop: Considerations, Flashback Time Navigation, Flashback Query: Overview, Flashback Query: Example, Flashback Versions Query: Overview, Flashback Versions Query Through Enterprise Manager, Flashback Versions Query: Considerations, Flashback Transaction Query: Overview, Flashback Transaction Query Through Enterprise Manager, Flashback Transaction Query: Considerations, Summary, Practice Overview: Using Flashback.

Moving Data

Moving Data: General Architecture, Directory Object: Overview, Creating Directory Objects, SQL*Loader: Overview, Loading Data with SQL*Loader, SQL*Loader Control File, Loading Methods, Data Pump: Overview, Data Pump: Benefits, Data Pump Export and Import: Overview, Data Pump Utility: Interfaces and Modes, Fin ained Object Selection, Advanced Feature: Sampling, Export Options: Files, Data Pump File Locations, Scheduling and Running a Job, Data Pump File Naming and Size, Data Pump Import, Data Pump Import: Transformations, Data Pump: Performance Consideration, Performance Initialization Parameters, Data Pump Access Path: Considerations, Using Enterprise Manager to Monitor Data Pump Jobs, External Table Population, Using External Tables, External Table Population with ORACLE_DATAPUMP, External Table Population with ORACLE_LOADER, Data Dictionary, Summary, Practice Overview: Moving Data.

Eligibility

BCA/BSC/MCA/MSc and Higher