Oracle 11g Database Administration Program
For OCA and OCP

Path

Curriculum

Module 1: Introduction to Oracle 11g SQL

Chap 1: Introduction to Oracle 11g and SQL

- Uniqueness of Oracle Database Suite
- Time line of Oracle database and versions
- Structure Query Language Overview (On Demand)
- Fundamental of DBMS (On Demand)
- Use of SQL
- Format and Types of SQL and Other SQL
- Oracle and SQL Relevance
- SQL vs. SQL* Plus vs. SQL Developer

Chap 2: Writing Basic SQL Commands:

- List of capabilities of SQL Select Statements
- Writing First SELECT statement
- Selecting all or specific columns in Oracle Tables
- Sorting Table Data from SELECT Statement using ORDER BY clause
- Selecting specific rows using SELECT command using WHERE BY clause
- Using ampersand (&) substitution variable in SELECT commands

Chap 3: Single Row SQL Functions:

- Types of Functions- Single Row, Multiple Row, Character, Number, Date and Conversion Functions
- Using Single Row character functions to customized the output
- Using various character functions, number functions and date functions
- Describing types of conversion functions
- Using TO_CHAR, TO_NUMBER and TO_DATE conversion functions
- Applying function based condition in WHERE BY clause in SELECT statement

Chap 4: Aggregate SQL Functions:

- Describing various types of group functions and their use
- Using GROUP BY clause to group data from SELECT statement
- Including or excluding grouped rows using HAVING clause

Chap 5: Displaying Data From Multiple Tables

- Describing basics of Oracle and SQL joins
- Writing SELECT statement to access the data from more than one tables using SQL equijoins and non-equijoins
- Join a table to itself using self join
- View the data that generally does not meet a join condition using OUTER JOIN
- Generating Cartesian product

Chap 6: Using Sub-queries

- Define Sub query and identifying the need for sub queries
- List the types of sub queries
- Writing Single and Multiple Row Sub queries

Chap 7: Using SET operators

- Describe SET operators and their types
- Use set operators to combine the output of SELECT statements
- Control of order of rows returned from SET operator sub queries

Chap 8: Manipulating Data Using DML Commands

- Describe each DML statement
- Inserting rows into table
- Update rows in a table

- Delete a row from table
- Bulk insertion of rows using sub queries inside INSERT statement
- Using sub query to update table
- Controlling transaction using COMMIT and ROLLBACK
- Use of SAVEPOINT

Chap 9: Creating and Managing Tables Using DDL Commands

- Listing the main database objects
- Reviewing the table structure using DESCRIBE or DESC command
- List the data types available for columns in Oracle SQL
- Creating a simple table
- Adding columns to existing table using ALTER command
- Removing columns from existing table
- Renaming column name of table
- Altering column specification
- Overview of constraints and types of constraints
- Applying UNIQUE and NOT NULL constraints at the time of creation of table (Column Level)
- Applying UNIQUE and NOT NULL constraints at the time of creation of table (Table Level)
- Concept of Primary Key
- Applying Primary Key constraint at the time of creation of table (Column Level)
- Applying Primary constraint at the time of creation of table (Table Level)
- Using CHECK constraint to force domain of data entry (Column Level)
- Using CHECK constraint to force domain of data entry (Table Level)
- Creating Primary Key and Foreign Key Relationship with referential integrity REFERCES constraints
- Applying constraints after the table creation using ALTER command

Chap 10: Other Schema Objects

- Introduction to VIEW, SYNONYMS, INDEX and SEQUENCE
- Creating Simple and Complex views
- Retrieving data from VIEW
- Creating, Managing and using SEQUENCES
- Creating and Managing INDEXES
- Creating public and private SYNONYMS
- Renaming object names

Module 2: Oracle 11g Database Administration Workshop 1

Chap 1: Exploring Oracle 11g Database Architecture

- Introduction to Oracle 11g Architecture
- Understanding concept of Database Server
- Concept of Instance and Database
- Connection to Database Server
- Ways to connect to database server
- Establishing the Session
- User Process and Server Process Connection
- Describing the main players of Oracle 11g Database Server
- Understanding the memory structure (Database Buffer Cache, Log Buffer Cache, Shared Pool, Data Dictionary Cache, Java Pool, Large Pool, Stream Pool and etc)
- Understanding the Process structure (DBWn, LGWR, CKPT, PMON, SMON, RECO, ARCHn and etc)
- Understanding the storage structure
- Concept of TABLESPACE and DATAFILES
- Logical view of database
- Physical view of database

Chap 2: Preparing Database Environment

- Listing and identifying the tools for DBAs
- Planning for Oracle Database Suite 11g Release 2
- Concept of ORACLE_HOME and ORACLE_BASE directory parameter
- Installing Oracle 11g Software using Oracle Universal Installer

Chap 3: Using DBCA

- Create a database using Database Configuration Assistance (DBCA)
- Creating Database template
- Deleting a database
- Modifying database settings using DBCA

Chap 4: Configuring Oracle Network Environment

- Concept of Listener
- Adding Listener

- Registering Listener with Database

Chap 5: Managing Oracle Instance

- Starting up the Database Using SQL* PLUS
- Stages of Database Startup (Close, No mount, Mount and Open)
- Concept of Initialization Parameters
- SPFILE and PFILE
- Creating PFILE from SPFILE and vice versa
- Use of creating PFILE
- Starting up the database with modified PFILE
- Parameters and their values
- Altering Parameter using ALTER SYSTEM command
- Viewing Alert Log and Trace Files
- Using Data Dictionary and Dynamic Performance Views

Chap 6: Oracle Enterprise Manager

- Web Interface of Oracle Manager
- Use of OEM or Database Control or DB Console
- Using EMCA to install or reinstall OEM (If not installed by default)
- Starting up and Shutting down the database using OEM
- Viewing Alert Log in OEM
- Navigating Through OEM
- Creating and Managing Database Objects using OEM

Chap 7: Managing Database Storage Architecture:

- Overview of TABLESPACE and DATAFILES
- Creating TABLESPACE
- Managing Growth of TABLESPACE
- Adding Data files in TABLESPACE
- Space Management in TABLESPACE
- Defining Default TABLESPACE
- Understanding the use of Temporary and UNDO TABLESPACE
- Creating TEMPORARY and UNDO TABLESPACE
- Fundamental of ASM

Chap 8: Administering User Security:

- Concept of Schema and User
- Creating Database Users
- Changing Password, Locking, Unlocking and other activities with Database User Account
- Assigning Default TABLESPACE and QUOTA to user
- Concept of Privileges- System and Object Privileges
- Assigning System and Object Privilege To Users
- Using WITH ADMIN OPTION and WITH GRANT OPTION clause with privileges
- Overview and Use of ROLE
- Creating ROLES
- Assigning privileges to ROLE
- Granting ROLES to Users
- Creating and Managing Profile
- Principle of Database security

Chap 9: Managing Data Concurrency

- Managing and Viewing User Sessions
- Killing User Sessions
- Demonstration of Lock Conflict
- Resolving the lock conflict

Chap 10: Managing UNDO Data

- Overview of UNDO segment
- Use of UNDO Segment
- Various properties of UNDO segment
- Managing UNDO retention

Chap 11: Database Maintenance

- Use and manage optimizer statistics
- Use and manage Automatic Workload Repository (AWR)
- Use Advisory Framework

Chap 12: Performance Management

- Using Automatic Memory Management
- Using Automatic Shared Memory Management
- Using Memory Advisor

Module 3: Oracle 11g Database Administration Workshop 1

Chap 1: Introduction to Oracle Backup Procedure

- Oracle 11g Architecture Revisit
- Importance of REDOLOG, CKPT and ARCHIVEDLOG files
- Use of Backup
- Types of Backup - Hot and Cold Backup, User Managed and Server Manager Backup
- Oracle Backup Solutions
- Types of failures in environment

Chap 2: Setting up Backup Task Activities

- Configuring Archived Log Mode for Database
- Locating data files, redo log file, archive log files and control file destination
- Listing important Oracle directories
- Configuring FLASH_RECOVERY_AREA

Chap 3: Performing Database Backup in Basic Mode

- Performing User Managed database OFFLINE or COLD backup using SQL Plus
- Performing User Managed database ONLINE or HOT backup using SQL Plus
- Configuring Database Backup parameters from Oracle Enterprise Manager
- Performing RMAN Backup Using Oracle Enterprise Manager

Chap 4: Performing RMAN Backup

- Create Image file backups
- Create Whole Image backup
- Create Base backup for Incremental level backup
- Create Incremental level 1 backup
- Create and use RMAN stored scripts

Chap 5: Performing Recovery

- Recovery from a lost TEMP file
- Recovery from a lost redo log group
- Recovery from a lost password file
- Performing User Managed Completed Recovery
- Performing User Managed Incomplete Recovery
- Backup and Recover Control File

- Performing complete recovery from a critical and non critical data file loss using RMAN
- Performing Incomplete recovery using RMAN
- Duplicating the database

Chap 6: Using Flashback

- Concept of Flashback
- Using Recycle Bin to restore dropped table
- Performing Flashback query
- Performing Flashback version query
- Use Flashback Transactions

Chap 7: Job Scheduler

- Using Oracle Job Scheduler to Automate Tasks