



CENTRAL PIEDMONT COMMUNITY COLLEGE

CORPORATE & CONTINUING EDUCATION

Course Number: DPT7977
Course Title: Oracle 10g: Administration Workshop I
Course Hours: 40 Hours

Last Revised On: 7/3/08

Description:

This course is designed to give students a firm foundation in basic database administration. Learn how to install and maintain an Oracle database while gaining a conceptual understanding of the Oracle database architecture and how its components work and interact with one another. Students will create an operational database and properly manage the various structures in an effective and efficient manner including performance monitoring, database security, user management, and backup/recovery techniques. This course is designed to prepare you for the corresponding Oracle Certified Associate exam. Books provided in class.

Objectives:

- Install the Database
- Back up and Recover Data
- Administer Users
- Transport Data between Databases
- Manage Data
- Configure the Network

Content:

1. Introduction (Database Architecture)
 - Describe course objectives
 - Explore the Oracle 10g database architecture
2. Installing the Oracle Database Software
 - Explain core DBA tasks and tools
 - Plan an Oracle installation
 - Use optimal flexible architecture
 - Install software with the Oracle Universal Installer (OUI)
3. Creating an Oracle Database
 - Create a database with the Database Configuration Assistant (DBCA)
 - Create a database design template with the DBCA
 - Generate database creation scripts with the DBCA
4. Managing the Oracle Instance
 - Start and stop the Oracle database and components
 - Use Enterprise Manager (EM)
 - Access a database with SQL*Plus and iSQL*Plus



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- Modify database initialization parameters
 - Understand the stages of database startup
 - View the Alert log
 - Use the Data Dictionary
5. Managing Database Storage Structures
- Describe table data storage (in blocks)
 - Define the purpose of tablespaces and data files
 - Understand and utilize Oracle Managed Files (OMF)
 - Create and manage tablespaces
 - Obtain tablespace information
 - Describe the main concepts and functionality of Automatic Storage Management (ASM)
6. Administering User Security
- Create and manage database user accounts
 - Authenticate users
 - Assign default storage areas (tablespaces)
 - Grant and revoke privileges
 - Create and manage roles
 - Create and manage profiles
 - Implement standard password security features
 - Control resource usage by users
7. Managing Schema Objects
- Define schema objects and data types
 - Create and modify tables
 - Define constraints
 - View the columns and contents of a table
 - Create indexes, views and sequences
 - Explain the use of temporary tables
 - Use the Data Dictionary
8. Managing Data and Concurrency
- Manage data through SQL
 - Identify and administer PL/SQL Objects
 - Describe triggers and triggering events
 - Monitor and resolve locking conflicts
9. Managing Undo data
- Explain DML and undo data generation
 - Monitor and administer undo



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- Describe the difference between undo and redo data
- Configure undo retention
- Guarantee undo retention
- Use the undo advisor

10. Implementing Oracle Database Security

- Describe DBA responsibilities for security
- Apply the principle of least privilege
- Enable standard database auditing
- Specify audit options
- Review audit information
- Maintain the audit trail

11. Configuring the Oracle Network Environment

- Use Enterprise Manager for configuring the Oracle network environment
- Create additional listeners
- Create Net Service aliases
- Configure connect-time failover
- Control the Oracle Net Listener
- Test Oracle Net connectivity
- Identify when to use shared versus dedicated servers

12. Proactive Maintenance

- Use statistics
- Manage the Automatic Workload Repository (AWR)
- Use the Automatic Database Diagnostic Monitor (ADDM)
- Describe advisory framework
- Set alert thresholds
- Use server-generated alerts
- Use automated tasks

13. Performance Management

- Use Enterprise Manager pages to monitor performance
- Use the SQL Tuning advisor
- Use the SQL Access advisor
- Use Automatic Shared Memory Management
- Use the Memory Advisor to size memory buffers
- Use performance related dynamic views
- Troubleshoot invalid or unusable objects



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14. Backup and Recovery Concepts

- Identify the types of failure that may occur in an Oracle Database
- Describe ways to tune instance recovery
- Identify the importance of checkpoints, redo log files, and archived log files
- Configure ARCHIVELOG mode

15. Performing Database Backups

- Create consistent database backups
- Back your database up without shutting it down
- Create incremental backups
- Automate database backups
- Monitor the flash recovery area

16. Performing Database Backups

- Recover from loss of a control file
- Recover from loss of a redo log file
- Perform complete recovery following the loss of a data file

17. Performing Flashback

- Describe Flashback database
- Restore the table content to a specific point in the past with Flashback Table
- Recover from a dropped table
- View the contents of the database as of any single point in time with Flashback Query
- See versions of a row over time with Flashback Versions Query
- View the transaction history of a row with Flashback Transaction Query

18. Moving Data

- Describe available ways for moving data
- Create and use directory objects
- Use SQL*Loader to load data from a non-Oracle database (or use files)
- Explain the general architecture of a Data Pump
- Use Data Pump Export and Import to move data between Oracle databases
- Use external tables to move data via platform-independent files

Prerequisites:

- Oracle 10g: Intro to SQL or equivalent experience.

Method of Instruction:

- Lecture, demonstration and hands-on use.



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Evaluation:

- Exam: NO
- Class participation: YES
- Demonstration of skills: YES