Introduction (Database Architecture)

- Describe course objectives
- Explore the Oracle 10g database architecture

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)

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

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
- Modify database initialization parameters
- Understand the stages of database startup
- View the Alert log
- Use the Data Dictionary

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)

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

Managing Schema Objects

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- 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
- Manage data through SQL
- Monitor and resolve locking conflicts

Managing Undo Data

- Explain DML and undo data generation
- Monitor and administer undo
- Describe the difference between undo and redo data
- Configure undo retention
- Guarantee undo retention
- Use the undo advisor

Implementing Oracle Database Security

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

Oracle DBA Training Syllabus – Part 2

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

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

Performing Database Backups

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

Performing Database Recovery

- 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

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

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 user files)
- Explain the general architecture of Data Pump
- Use Data Pump Export and Import to move data between Oracle databases
- Use external tables to move data via platform-independent files

Configuring Recovery Manager

- Recovery Manager Features and Components
- Using a Flash Recovery Area with RMAN
- Configuring RMAN
- Control File Autobackups
- Retention Policies and Channel Allocation
- Using Recovery Manager to connect to a target database in default NOCATALOG mode
- Displaying the current RMAN configuration settings
- Altering the backup retention policy for a database

Using Recovery Manager

- RMAN Command Overview
- Parallelization of Backup Sets
- Compressed Backups
- Image Copy
- Whole Database and Incremental Backups
- LIST and REPORT commands
- Enable ARCHIVELOG mode for the database
- Use Recovery Manager

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Recovering from Non-critical Losses

- Recovery of Non-Critical Files
- Creating New Temporary Tablespace
- Recreating Redo Log Files, Index Tablespaces, and Indexes
- Read-Only Tablespace Recovery
- Authentication Methods for Database Administrators
- Loss of Password Authentication File
- Creating a new temporary tablespace
- Altering the default temporary tablespace for a database

Incomplete Recovery

- Recovery Steps
- Server and User Managed Recovery commands
- Recovering a Control File Autobackup
- Creating a New Control File
- Incomplete Recovery Overview
- Incomplete Recovery Best Practices
- Simplified Recovery Through RESETLOGS
- Point-in-time recovery using RMAN

Flashback

- Flashback Database Architecture
- Configuring and Monitoring Flashback Database
- Backing Up the Flash Recovery Area
- Using V$FLASH_RECOVERY_AREA_USAGE
- Flashback Database Considerations
- Using the Flashback Database RMAN interface
- Using Flashback Database EM Interface
  Managing and monitoring Flashback Database operations

Dealing with Database Corruption

- Block Corruption Symptoms: ORA-1578
- DBVERIFY Utility and the ANALYZE command
- Initialization parameter DB_BLOCK_CHECKING
- Segment Metadata Dump and Verification
- Using Flashback for Logical Corruption and using DBMS_REPAIR
- Block Media Recovery
- RMAN BMR Interface
- Dumping and Verifying Segment Metadata

Monitoring and Managing Storage I

- Database Storage Structures
- Space Management Overview
- Oracle-Managed Files (OMF)
- Row Chaining and Migrating
- Proactive Tablespace Monitoring
- Managing Resumable Space Allocation

- SYSAUX Tablespace
- Monitoring table and index space usage

Monitoring and Managing Storage II

- Automatic Undo Management
- Redo Log Files
- Table Types
- Partitioned Tables
- Index-Organized Tables (IOT)
- Managing index space with SQL
- Configure optimal redo log file size
- View "Automatic Tuning of Undo Retention"

VLDB Support

- Creating Bigfile Tablespaces
- Packages and data dictionary changes to support VLDB
- Creating and maintaining temporary tablespace groups (TTG)
- Partitioning and Partitioned Indexes
- Skipping unusable indexes
- DML Error Logging
- Interpreting Bigfile ROWIDs

Automating Tasks with the Scheduler

- Scheduler Concepts
- Creating a Job Class and a Window
- Managing Jobs, Programs, Chains, Events, Schedules, priority
- Viewing and Purging Job Logs
- Creating a program and a schedule
- Creating a job that uses a program and a schedule
- Altering the program and schedule for the job and observing the behavior change of the job
- Monitoring job runs

Workshop

- Workshop Methodology, requirements, and setup
- Scenario 1: Database performance
- Scenario 2: Finding and Tuning Inefficient SQL
- Scenario 3: SGA Management – REDO
- Scenario 4: Running out of Undo Space
- Scenario 5: Missing datafile
- Scenario 6: Managing space in a tablespace – REDO
- Scenario 7: Missing TEMP data file