

INT401:DATABASE ADMINISTRATION

L:0 T:0 P:4 Credits:4

Course Outcomes: Through this course students should be able to

- Create and manage an oracle database instance
- Create and manage storage structures.
- Configure the oracle network environment.
- Create and manage users and also able to monitor the database and manage performance.
- Monitor the database and manage performance
- Describe and understand basic information on backup and recovery techniques.

Unit I

Introduction to oracle database 12c, database instances and oracle network environment : overview of oracle database 12c, overview of oracle cloud, overview of the HR schema, oracle database architecture overview, oracle database instance configurations, connecting to the oracle database instance, oracle database memory structures, process architecture and process structures, process start up sequence and database storage architecture, introducing oracle database management tools, understanding the enterprise manager and management framework, logging in to oracle enterprise manager database express, using the enterprise manager database express home page, using enterprise manager cloud control, using SQL*Plus, using SQL developer, initialization parameter files, overview of oracle net services and oracle net listener, establishing oracle network connections, tools for configuring and managing the oracle network, using the listener control utility, using oracle net configuration assistant, using oracle net manager and using enterprise manager cloud control

Unit II

Database storage structures, user security and data concurrency : understanding storage of data, database block contents, exploring the storage structure, creating a new tablespace, overview of tablespaces, created by default and managing tablespaces, viewing tablespace information, using oracle managed files, database user accounts, predefined administrative accounts, creating a user authentication, unlocking a user account and resetting the password, privileges, roles and profiles, overview of locks and locking mechanism, data concurrency, DML locks, enqueue mechanism, lock conflicts, undo data overview, transactions and undo data, storing undo information, comparing undo data and redo data and managing undo, configuring undo retention and guaranteeing undo retention, changing an undo tablespace to a fixed size

Unit III

Oracle database auditing and database maintenance : database security and separation of responsibilities, monitoring for compliance, standard database auditing, unified audit data trail, separation of duties for audit administration (audit_admin and audit_viewer roles),, configuring the audit trail and specifying audit options, database maintenance, viewing the alert history terminology, automatic workload repository, statistic levels and automatic database diagnostic monitor, advisory framework, enterprise manager and advisors

Unit IV

Unit IV

Performance tuning methodology, SQL tuning and database resource

manager : managing performance and performance monitoring, tuning activities, performance planning, instance tuning and performance tuning data, monitoring performance and managing memory, sql tuning and oracle optimizer, sql plan directives, adaptive execution plans, sql advisors, automatic sql tuning results, implement automatic tuning recommendations, sql tuning advisor, database resource manager concepts, using the resource manager and default maintenance resource manager plan, resource manager workflow, specifying resource plan directives, resource allocation methods for resource plans

Unit V

Automating tasks by using oracle scheduler and managing space : simplifying management tasks, understanding a simple job and its core components, basic work flow, persistent lightweight jobs, using a time-based or event-based schedule, creating a time-based job and creating an event-based schedule, space management overview, block space management, row chaining and migration, free space management within segments, types of segments, allocating extents, allocating space and creating tables without segments

Unit VI

Backup and recovery concepts, moving data and working with oracle

support : categories of failures, flashback technology, understanding instance recovery and phases of instance recovery, tuning instance recovery, using the mttr advisor, media failure and configuring for recoverability, moving data general architecture, oracle data pump, sql*loader, external tables, using the support workbench, using enterprise manager, working with oracle support, my oracle support integration, researching an issue, logging service requests, managing patches, applying a patch release

Text Books:

1. ORACLE DATABASE 12C: ADMINISTRATION WORKSHOP ED 2(E-KIT) by ORACLE, ORACLE PRESS

References:

1. ORACLE DATABASE 12C: INSTALL, CONFIGURE & MAINTAIN LIKE A PROFESSIONAL by IAN ABRAMSON, MICHAEL S. ABBEY, MICHAEL COREY, MICHELLE MALCHER, Tata McGraw Hill, India
2. OCA: ORACLE DATABASE 12C ADMINISTRATOR CERTIFIED ASSOCIATE STUDY GUIDE by BIJU THOMAS, JOHN WILEY & SONS