

Oracle Database 19c: Data Warehousing Techniques

Course Duration: 16 Hours

Course code: D1101948GC10

1. Course Overview

This 2-day course provides an in-depth understanding of data warehousing concepts and implementation in Oracle Database 19c. Learners will gain insights into the design, architecture, and management of data warehouses. The course covers dimensional modeling, star and snowflake schemas, ETL processes, partitioning, indexing, parallel execution, and query optimization techniques. Participants will also explore Oracle's advanced features for data warehousing, including materialized views, compression, and in-database analytics. Hands-on exercises will help learners apply concepts to real-world warehousing scenarios.

2. What you'll learn?

By the end of the course, you should be able to:

- Describe Oracle Database 19c features for data warehousing and analytics
- Design effective star and snowflake schemas for reporting and analysis
- Implement partitioning strategies for performance and scalability
- Use materialized views and query rewrite for faster analytics
- Manage indexes and advanced compression in data warehouses
- Apply parallel query and workload management techniques
- Optimize queries and tune performance in Oracle 19c
- Understand ETL and data integration processes for warehouse environments

3. Target Audience

- Data warehouse architects and designers
- Database administrators working with analytical workloads
- Business intelligence and reporting professionals
- Developers building large-scale data-driven applications

4. Pre-Requisites

Familiarity with:

- Oracle Database 19c fundamentals and SQL
- Data warehousing concepts and dimensional modeling
- Basic knowledge of ETL processes

5. Course content

Module 1: Course Introduction

- Introduction
- Course contents

Module 2: Introduction to Data Warehousing with Oracle 19c

- What is a data warehouse?
- Oracle Database 19c features for warehousing
- OLTP vs OLAP vs Data Warehousing

Module 3: Data Warehouse Design Concepts

- Dimensional modeling basics
- Star and snowflake schema
- Fact tables and dimension tables

Module 4: Partitioning in Oracle 19c

- Partitioning overview and benefits
- Range, list, and hash partitioning
- Composite partitioning techniques

Module 5: Materialized Views and Query Rewrite

- Creating and managing materialized views
- Refresh strategies
- Query rewrite and optimization

Module 6: Indexing and Compression in Warehouses

- Bitmap indexes
- B-Tree indexes
- Advanced compression for storage optimization

Module 7: Parallel Execution and Workload Management

- Parallel query execution
- Resource Manager for workload balancing
- Managing large-scale ETL loads

Module 8: Performance Tuning for Data Warehouses

- Optimizer concepts
- SQL tuning for analytical queries
- Partition pruning and indexing strategies

Module 9: Data Integration and ETL with Oracle

- ETL processes in Oracle
- Using external tables
- Oracle Data Integrator overview

Module 10: Advanced Data Warehousing Features in 19c

- In-Memory column store for analytics
- Hybrid partitioned tables
- Automatic indexing in Oracle 19c

Module 11: High Availability and Scalability in Warehouses

- Real Application Clusters (RAC)
- Data Guard for data warehouse environments
- Managing growth and scalability

Module 12: Best Practices and Case Studies

- Best practices in data warehouse lifecycle management

- Real-world scenarios and case studies
- Summary and course wrap-up

