

Oracle Database 11g: Data Warehousing Fundamentals

Duration: 3 Days

What you will learn

This Oracle Database 11g: Data Warehousing Fundamentals training will teach you about the basic concepts of a data warehouse. Explore the issues involved in planning, designing, building, populating and maintaining a successful data warehouse.

Learn To:

Define the terminology and explain basic concepts of data warehousing.

Identify the technology and some of the tools from Oracle to implement a successful data warehouse.

Describe methods and tools for extracting, transforming and loading data.

Identify some of the tools for accessing and analyzing warehouse data.

Describe the benefits of partitioning, parallel operations, materialized views and query rewrite in a data warehouse.

Explain the implementation and organizational issues surrounding a data warehouse project.

Improve performance or manageability in a data warehouse using various Oracle Database features.

Oracle's Database Partitioning Architecture

You'll also explore the basics of Oracle's Database partitioning architecture, identifying the benefits of partitioning.

Review the benefits of parallel operations to reduce response time for data-intensive operations. Learn how to extract, transform and load data (ETL) into an Oracle database warehouse.

Improve Data Warehouse Performance

Learn the benefits of using Oracle's materialized views to improve the data warehouse performance. Instructors will give a high-level overview of how query rewrites can improve a query's performance. Explore OLAP and Data Mining and identify some data warehouse implementations considerations.

Use Data Warehousing Tools

During this training, you'll briefly use some of the available data warehousing tools. These tools include Oracle Warehouse Builder, Analytic Workspace Manager and Oracle Application Express.

Audience

Application Developers

Data Warehouse Administrator

Data Warehouse Analyst

Data Warehouse Developer

Developer

Functional Implementer

Project Manager
Support Engineer

Related Training

Suggested Prerequisites

Knowledge of client-server technology

Knowledge of general data warehousing concepts

Knowledge of relational server technology

Course Objectives

Describe methods and tools for extracting, transforming, and loading data

Identify some of the tools for accessing and analyzing warehouse data

Identify the technology and some of the tools from Oracle to implement a successful data warehouse

Define the decision support purpose and end goal of a data warehouse

Describe the benefits of partitioning, parallel operations, materialized views, and query rewrite in a data warehouse

Explain the implementation and organizational issues surrounding a data warehouse project

Use materialized views and query rewrite to improve the data warehouse performance

Define the terminology and explain the basic concepts of data warehousing

Develop familiarity with some of the technologies required to implement a data warehouse

Course Topics

Introduction

Course Objectives

Course Schedule

Course Pre-requisites and Suggested Pre-requisites

The sh and dm Sample Schemas and Appendices Used in the Course

Class Account Information

SQL Environments and Data Warehousing Tools Used in this Course

Oracle 11g Data Warehousing and SQL Documentation and Oracle By Examples

Continuing Your Education: Recommended Follow-Up Classes

Data Warehousing, Business Intelligence, OLAP, and Data Mining

Data Warehouse Definition and Properties

Data Warehouses, Business Intelligence, Data Marts, and OLTP

Typical Data Warehouse Components

Warehouse Development Approaches

Extraction, Transformation, and Loading (ETL)
The Dimensional Model and Oracle OLAP
Oracle Data Mining

Defining Data Warehouse Concepts and Terminology

Data Warehouse Definition and Properties
Data Warehouse Versus OLTP
Data Warehouses Versus Data Marts
Typical Data Warehouse Components
Warehouse Development Approaches
Data Warehousing Process Components
Strategy Phase Deliverables
Introducing the Case Study: Roy Independent School District (RISD)

Business, Logical, Dimensional, and Physical Modeling

Data Warehouse Modeling Issues
Defining the Business Model
Defining the Logical Model
Defining the Dimensional Model
Defining the Physical Model: Star, Snowflake, and Third Normal Form
Fact and Dimension Tables Characteristics
Translating Business Dimensions into Dimension Tables
Translating Dimensional Model to Physical Model

Database Sizing, Storage, Performance, and Security Considerations

Database Sizing and Estimating and Validating the Database Size
Oracle Database Architectural Advantages
Data Partitioning
Indexing
Optimizing Star Queries: Tuning Star Queries
Parallelism
Security in Data Warehouses
Oracle's Strategy for Data Warehouse Security

The ETL Process: Extracting Data

Extraction, Transformation, and Loading (ETL) Process
ETL: Tasks, Importance, and Cost
Extracting Data and Examining Data Sources
Mapping Data
Logical and Physical Extraction Methods
Extraction Techniques and Maintaining Extraction Metadata
Possible ETL Failures and Maintaining ETL Quality
Oracle's ETL Tools: Oracle Warehouse Builder, SQL*Loader, and Data Pump

The ETL Process: Transforming Data

Transformation
Remote and Onsite Staging Models
Data Anomalies
Transformation Routines
Transforming Data: Problems and Solutions
Quality Data: Importance and Benefits
Transformation Techniques and Tools

Maintaining Transformation Metadata

The ETL Process: Loading Data

Loading Data into the Warehouse

Transportation Using Flat Files, Distributed Systems, and Transportable Tablespaces

Data Refresh Models: Extract Processing Environment

Building the Loading Process

Data Granularity

Loading Techniques Provided by Oracle

Postprocessing of Loaded Data

Indexing and Sorting Data and Verifying Data Integrity

Refreshing the Warehouse Data

Developing a Refresh Strategy for Capturing Changed Data

User Requirements and Assistance

Load Window Requirements

Planning and Scheduling the Load Window

Capturing Changed Data for Refresh

Time- and Date-Stamping, Database triggers, and Database Logs

Applying the Changes to Data

Final Tasks

Materialized Views

Using Summaries to Improve Performance

Using Materialized Views for Summary Management

Types of Materialized Views

Build Modes and Refresh Modes

Query Rewrite: Overview

Cost-Based Query Rewrite Process

Working With Dimensions and Hierarchies

Leaving a Metadata Trail

Defining Warehouse Metadata

Metadata Users and Types

Examining Metadata: ETL Metadata

Extraction, Transformation, and Loading Metadata

Defining Metadata Goals and Intended Usage

Identifying Target Metadata Users and Choosing Metadata Tools and Techniques

Integrating Multiple Sets of Metadata

Managing Changes to Metadata

Data Warehouse Implementation Considerations

Project Management

Requirements Specification or Definition

Logical, Dimensional, and Physical Data Models

Data Warehouse Architecture

ETL, Reporting, and Security Considerations

Metadata Management

Testing the Implementation and Post Implementation Change Management

Some Useful Resources and White Papers