



Course 274:
Data Warehousing: Data Architecture (Hands-On)
(4 Days)

Course Description...

In this course, attendees study how to specify architecture of the data warehouse. The architecture will be implemented by designing a data warehouse using standard Dimensional Modeling Techniques. Focus will be on the establishment of a Data Warehouse Architectural Bus using Common Dimensions. Tasks include: architecture bus specification, business modeling, entity relationship diagramming using STAR techniques, dimensional and physical modeling. Students reinforce the concepts in Project Workshops. The *hands-on* exercises include implementing the architectural design in an Oracle database.

Learning Objectives...

- Specify the data architecture for data warehousing
- Use entity relationship diagrams to transform the business model into a dimensional model
- Define the process of designing a data warehouse database model
- Transform the dimensional model into a physical data design
- Use a CASE tool to capture requirements, validate the design and create the database
- Explain the central concepts of dimensional data models
- Plan for the on-going requirements changes associated with Data Warehousing
- Understand the features Oracle provides for processing the Star Schema
- Specify the data architecture for extensibility
- Learn what features database vendors have supplied for this class of applications
- Design OLAP Reports

Who should attend...

Audience includes Data Architects, Project Managers, Oracle Data Warehouse Administrators, Data Warehouse Designers and Data Administrators, and key personnel involved in data warehouse projects.

Prerequisites...

No specific prerequisites other than basic familiarity with a relational database and SQL.

See next page for a detailed course outline...



Course Outline

Introduction and Overview

Course Objectives

Unit 1: What is the Data Architecture?

Unit Objectives

Why a Data Architecture is necessary

- Specify a Dimensional Model
- Ensure that the Data Warehouse Architectural Bus is designed
- The case for Entity Relationship Diagrams
- The Nature of Data Warehousing queries
- The strengths of the Dimensional Modeling

Unit 2: Fact and Dimensional Tables

Unit Objectives

What is a Fact?

- Characteristics and classifications
- Must all Facts be additive?

What is a Dimension?

- Attributes
- Drilling Up and Down
- Can I Snowflakes?

Implementing Data Warehouse Architectural Bus

- Using Conformed Dimensions

Unit 3: Specifying Types of Dimensions in the Data Architecture

Unit Objectives

Changing Dimensions

- Slow Types 1-4
- Rapidly Changing Small Dimensions
- Large Dimensions
- Degenerate and Junk Dimensions

Unit 4: Designing the Dimensional Model

Unit Objectives

Four Step Approach

- Choosing the Data Mart
- Establishing the Grain of the Fact Table
- Using Conforming Dimensions
- Choosing the Facts

Using CASE Tools to Capture the Design

- What is CASE?
- What capabilities will I want

Suppose I change my mind?

- Implications
- Planning for the future



Unit 5: Turning the Data Architecture into a Physical Reality

Unit Objectives

What is a Physical Model?

- Relationships
- Super and Sub Sets
- Using the CASE tool to automate the transformation

Star Schemas

- Challenges and Issues

Oracle Features:

Tuning Ad Hoc Queries

- Key tuning requirements
- Star Transformations
- Star Schema Index Design
- Bit Maps

Implementing Aggregates

- Which aggregates should be built?
- Using Materialized Views

Partitioning for Performance, Availability, and Manageability

- Partitioning Tables
- Partitioning Indexes

Unit 6: OLAP Reporting

Unit Objectives

- Relating the Dimensions to Selection Criteria
- Seeing Facts as Cells
- Classes of Tools

Unit 7: Data Architecture Performance

- Using Btree and Bitmap Indexes
 - Partitioning large data stores
- Using Aggregation Features

Unit 8: Summary

Next Steps...

Please contact your ROI representative to discuss course tailoring!!!