

Dimensional Modeling in Depth

Why Attend

Excellence in dimensional modeling remains the keystone of a well-designed data warehouse presentation area, regardless of whether you've adopted a Kimball, Corporate Information Factory (CIF), or hybrid architecture. This course gives you the opportunity to learn directly from the industry's dimensional modeling thought leaders.

The world "Kimball" is synonymous with dimensional modeling. Ralph has established an extensive portfolio of dimensional techniques and vocabulary, including conformed dimensions, slowly changing dimensions, junk dimensions, mini-dimensions, bridge tables, periodic and accumulating snapshot fact tables, and the list goes on.

In this course, you will learn practical dimensional modeling techniques covering basic to advanced issues and patterns. Concepts are taught through a combination of lectures, class exercises, small group workshops, and individual problem solving illustrated by real-world industry scenarios. Our goal is for students to gain an in-depth understanding of dimensional modeling so they can confidently apply the techniques in their workplace following the training

Who Should Attend

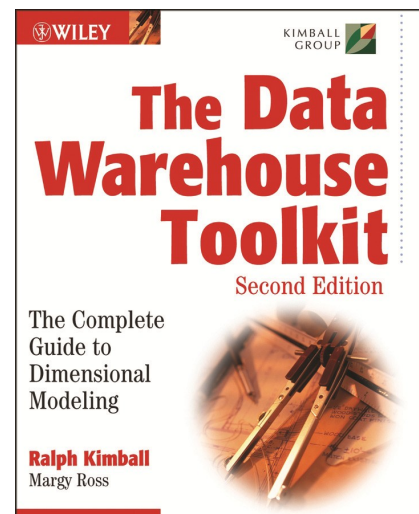
This course is designed for data warehouse architects, data modelers, database administrators, business analysts, and ETL or BI application developers and system designers. It's appropriate for anyone interested in an A to Z coverage of dimensional modeling.

Instructors

Margy Ross and Ralph Kimball, co-authors of *The Data Warehouse Toolkit, 2nd Edition*

Course Overview

- Day 1
 - Dimensional Modeling Fundamentals
 - Retail Sales Case Study
 - Order Management Design Workshop
- Day 2
 - Inventory Case Study
 - Billing Design Review Exercise
 - Slowly Changing Dimensions
 - Credit Card Design Workshop
 - Insurance Case Study
- Day 3
 - Financial Applications, General Ledger and Budgeting Value Chain
 - Retail Bank Account Tracking Workshop
 - ETL Backroom Dimensional Designs
- Day 4
 - Customer Behavior Patterns and Modeling Challenges
 - Real Time Tracking



Dimensional Modeling in Depth: Course Details

DAY 1

Dimensional Modeling Fundamentals

- Publishing responsibilities of DW/BI professionals
- Role of dimensional modeling in the Kimball, Corporate Information Factory (CIF), and hybrid architectures
- Fact and dimension table characteristics
- Surrogate key for dimensions
- Fact table granularity
- Degenerate dimensions
- Benefits of dimensional modeling
- 4-step design process

Retail Sales Case Study

- Transaction fact tables
- Denormalized dimension table hierarchies
- Dealing with nulls
- Dimension role-playing
- Date and time-of-day dimension considerations
- Centipede fact tables with too many dimensions
- Star versus snowflake schemas
- Factless fact tables

Order Management Design Workshop

- Complications with operational header/line data
- Allocated facts at different levels of detail
- Abstract, generic dimensions
- Freeform text comments
- Junk dimensions for miscellaneous transaction indicators
- Multiple currencies

DAY 2

Inventory Case Study

- Implications of business processes on data architecture
- Semi-additive facts
- Three types of fact tables - transaction, periodic snapshot and accumulating snapshot
- Conformed dimensions - identical and shrunken roll-ups
- Enterprise Data Warehouse Bus Architecture and matrix for master data and integration
- Drilling across fact tables
- Consolidated cross-process fact tables
- Individual exercise: Translate business requirements into DW bus matrix

Billing Design Review Exercise

- Common design flaws and mistakes to avoid
- Checklist for conducting design reviews

Slowly Changing Dimensions

- Basic Type 1, 2 and 3 techniques
- Advanced techniques to deliver current and point-in-time attribute values
- Mini-dimensions for large, rapidly changing dimensions
- Multiple mini-dimensions and outriggers

Credit Card Design Workshop

- Complementary transaction and periodic snapshot schemas
- Design considerations for one dimension versus two dimensions
- Bridge tables for many-valued dimension attributes
- Fact table normalization

Insurance Case Study

- Review of design patterns and techniques
- Development of bus matrix from extended case study
- Complex, unpredictable accumulating snapshots
- Detailed implementation bus matrix

Dimensional Modeling Process

- Process flow, tasks and deliverables

DAY 3

Financial Applications—Profit Equation

- Allocating costs to the same grain as revenue
- Profit margin point analysis and value banding

Financial Applications—General Ledger

- Tracking instantaneous balances
- Multiple time zones
- Drilling down in the general ledger to a document

Financial Applications—Budgeting Value Chain

- Budgets, commitments and expenditures
- Bridge tables for variable-depth ragged hierarchies
- Shared ownership and time-varying ragged hierarchies
- Pathstring alternative for ragged hierarchies
- Tracking the “age of the book”
- Calculating the “policy loss triangle”

Retail Bank Account Tracking Workshop

- Multiple account types with hundreds of potential attributes and facts
- Many-to-many account to customer map and weighted versus “impact” reports
- Tagging accounts as “about to go bankrupt”
- Super-types and sub-types

Automobile Options Exercise

- Column versus row trade-offs based on usability and scalability

Compliance-Enabled Data Warehouses

- Eliminating Type 1 and Type 3 updates

ETL Back Room Dimensional Designs

- Tracking data quality with error event fact table
- Column, structure, and business rule tests for data quality
- Reporting data quality with audit dimension

DAY 4

Customer Relationship Management Payoffs Discussion

- Business users’ expectations and bottom line impact?
- Data sources needed? Common quality/integration problems?

Complex Customer Behavior Case Studies

- Building study groups
- Sequential time dependent study groups
- Applying study groups to marketing panels and medical outcomes

Building Custom User Interfaces

- Examples: car option selection, value band definition, study group creation

Customer Dimension Modeling Challenges

- Sparse but wide demographics attributes
- Finding detailed customer profile at random times in the past
- Tricky time span queries
- Simultaneous facts and dimensions
- Relationship between prospects and customers

Real Time Customer Tracking

- Hot partitions
- Handling unresolved customer identities in real time

Modeling Sequential Behavior

- Step dimension for describing sequential behavior
- RFID and web page challenges
- Modeling product purchase sequences

Final Customer-Centric Topics

- “Text” facts for customer cluster identification
- Structured questionnaires

