Dimensional Modeling Fundamentals

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.

The world “Kimball” is synonymous with dimensional modeling. Ralph Kimball 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 fundamental patterns and best practices. Concepts are illustrated through real-world industry scenarios, conveyed through a combination of lectures, class exercises, small group workshops, and individual problem solving. While this course doesn’t cover every dimensional modeling pattern, those most commonly observed across industries are thoroughly discussed. In addition, you will receive an overview of the Kimball Lifecycle Approach for designing and building a DW/BI system.

Bringing Kimball University onsite enables everyone on the team to get on the same page with a common vocabulary and understanding of core techniques. The result is more efficient education with lower travels cost and lost productivity, plus less downstream “tire spinning” within the team.

Who Should Attend
This course is appropriate for anyone interested in dimensional modeling, whether they’re project managers, data warehouse architects, data modelers, database administrators, business analysts, and ETL or BI application developers and system designers.

Instructor
Either Margy Ross, co-author of The Data Warehouse Toolkit, 2nd Edition, or Bob Becker. Both Bob and Margy have focused on dimensional modeling for over two decades.

Course Overview
Day 1
• Introductions
  • Dimensional Modeling Fundamentals
  • Retail Sales “Basics” Case Study
  • Inventory “Beyond the 1st Business Process” Case Study
  • Slowly Changing Dimensions
  • Order Management Design Workshop

Day 2
• Billing Design Review Exercise
  • Kimball Lifecycle Approach Overview
  • Transportation “Design Enhancement” Case Study
  • Retail Brokerage Design Workshop
  • Insurance “Pulling it all Together” Case Study
  • Client-Specific Workshop
Dimensional Modeling Fund: Course Details

DAY 1

Introductions
• Course agenda and assumptions

Dimensional Modeling Fundamentals
• Role of dimensional modeling in the Kimball, Corporate Information Factory (CIF), and hybrid architectures
• Fact and dimension table characteristics
• Benefits of dimensional modeling

Retail Sales “Basics” Case Study
• 4-step process for designing dimensional models
• Fact table granularity
• Transaction fact tables
• Degenerate dimensions
• Date and time-of-day dimension considerations
• Denormalized dimension table hierarchies
• Dealing with nulls
• Surrogate keys for dimensions
• Centipede fact tables with too many dimensions
• Star versus snowflake schemas
• Factless fact tables

Inventory “Beyond the 1st Business Process” Case Study
• Implications of business processes on data architecture
• Periodic snapshot fact tables
• Semi-additive facts
• Conformed dimensions – identical and shrunken roll-ups
• Enterprise Data Warehouse Bus Architecture and matrix for master data and integration
• Exercise: Translate business requirements into DW bus matrix

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

Order Management Design Workshop
• Drilling across fact tables
• Consolidated cross-process fact tables
• Dimension table role-playing
• Allocated facts at different levels of data
• Simultaneous facts and dimensions
• Complications with operational header/line data
• Multiple currencies
• Junk dimensions for miscellaneous transaction indicators
• Accumulating snapshot fact tables

DAY 2

Billing Design Review Exercise
• Common design flaws and mistakes to avoid
• Checklist for conducting design reviews

Kimball Lifecycle Approach for DW/BI System Development
• Best practices from project launch through deployment
• Common challenges and pitfalls
• Exercise: Surrogate key administration for slowly changing dimensions

Transportation “Design Enhancement” Case Study
• Exercise: Schema enhancements for changing
• Multiple time zones
• Design trade-offs

Retail Brokerage Design Workshop
• Complementary transaction and periodic snapshot schemas
• Modeling many-valued dimension attributes with bridge tables
• Generic abstract dimensions
• Freeform text comments

Insurance “Pulling it all Together” Case Study
• Review of design patterns and techniques
• Development of bus matrix from extended case study
• Detailed implementation bus matrix

Client Specific Workshop
• Development of client-centric preliminary data warehouse bus matrix

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