Module 1
Introduction

- Dimensional Models
  - Definition
  - Uses
  - Business-oriented Process Measurement
  - Kinds of Stars
  - Slowly Changing Dimensions
- History of the Dimensional Model
  - Foundation for Data Marts and OLAP
  - Popularized in the 1990's
- BI & Analytics Today
  - Multiple Service Families
  - Governance and Quality
  - Self-service
  - Agile Development
  - Big Data and New Sources
  - New Technology
  - Organizational Changes
- Death of the Dimensional Model?

Module 2
Modern Data Architecture

- Data Architecture with Purpose
  - Yesterday's Data Architecture
  - Data Store Functions and Characteristics
- Data Architecture Without Purpose
  - A Box Labeled “Hadoop”
  - A Box Labeled “Data Lake”
- Modernizing the ‘Back Room’
  - Non-relational Storage and Integration
- Enabling Discovery and Self-Service
  - Unlocking Big Data
  - Intake and Exploration
  - Archive or Deploy
  - Dimensional View of Consumable Assets
  - Directory of Resources: The Data Catalog
- Changes to the ‘Front Room’
  - Data Marts and NoSQL
  - Logical vs. Physical Perspectives
  - Data Warehouse and NoSQL
  - Logical vs. Physical Integration
- Rounding Out Your Data Architecture
- The Data Pipeline
- Virtualization
  - Virtualization Concepts
  - Business View
  - Connecting to Non-Relational Sources
  - Extending the Data Warehouse or Data Mart
  - Prototyping
  - Virtualizing Data Stores
The Dimensional Model Refactored: New Techniques for the 21st Century

Course Outline

Module 3
Dimensional Design and Big Data

- Tapping into Big Data
  - Understanding NoSQL Technology
  - Changing Nature of Data Modeling
  - Beyond Production Data Sets
  - New Data for the Warehouse
- Data Warehouse Augmentation Techniques
  - New Facts
  - Behavioral Dimensions
  - Attribute-value Pairs
- Data Warehouse Extension Techniques
  - Application Extends Data Mart
  - Virtualization Extends Data Mart
- Analytics-Friendly Design Techniques
  - A New Consumer
  - Granular Data
  - Variety of Attributes
  - Weak Identifiers
  - Dimension History
  - Missing Data

Module 4
Rethinking the Dimensional-centric Perspective

- Value of the Dimensional Model
  - Information
  - Dimensional Models and BI
  - The “Dimensional First” Point of View
- Modern Data Management
  - New Audiences
  - New Processes
  - New Goals
  - New Vocabularies for Describing Data
  - Expanded Data Architecture
- Implications of Modern Architecture
  - Data Marts Still Exist
  - Cleansing and Master Data
  - Performance Management
  - Analytics and Data Science
  - Production Data Sets
- Dimensional First?
  - Applicability of the Dimensional Model
  - “Dimensional First” no longer Applies

Module 5
Rethinking Conformed Dimensions and Project Scope

- Traditional Enterprise Scope
  - Broad Scope
  - Conformed Dimensions
  - Ensuring Fit
- The Dangers of Enterprise Scope
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Course Outline

- Previous Failures: The 1980's
- The Myth of Conformity
- Time-to-value
- Driving Scope with Business Priorities
  - Stand-alone Data Marts
  - Managing Scope
  - Managing Risk

Module 6
Rethinking Best Practices of Dimensional Design

- Defensive Design
  - Design Future-proof Models
  - Best Practices Address Uncertainty
- Impact of Traditional best Practices
  - Set Grain at Lowest Level Possible
  - Include all Applicable Dimension Tables
  - Include as Many Dimension Attributes as Possible
  - Paying for an Unspecified Need
- Refocusing on Business Value
  - Reconsidering Design Practices
  - Impact of Future-Proof Models
  - Targeted Design Practices
- Managing Risk
  - Striking the Correct Balance
  - The Debt Matrix
  - Making Balanced Choices

Module 7
Refactoring Techniques

- Refactoring Overview
  - Evaluating Impacts
  - Classifying Impacts
- Low Impact Changes
  - Adding a Fact
  - Adding a Dimension Attribute
  - Adding a Dimension Table
  - Adding Current Values
- High Impact Changes
  - Adding Historic Values
  - Changing Grain
- Very High Impact Changes
  - Conforming Dimensions
- Impact Summary

Module 8
Streamlining Requirements & Design

- Traditional BI Requirements
  - Linear Process
  - Data Model Focus
  - Division of Labor
- Modern Requirements
  - Rethinking What is Needed
  - Iterative Process
  - Collaborative Development
Module 9
Templates for Actionable Requirements

- Templates
  - Purpose and Recommendations
- Business Information Needs
  - Subject Area Template
  - BDM Diagram
  - Hierarchy Diagram
  - Metric Template
  - Conformance Matrix
- Top Level Design
  - Star Template
  - Dimension Template
  - Conformance Bus
- Customizing the Templates

Module 10
Summary and Conclusion

- Summary of Key Points
- Recommended Resources

Appendix
Template Worksheets

- Using the Templates
- Worksheets: Business Information Needs
  - Subject Area Definition
  - BDM Diagram
  - Business Hierarchy
  - Metric Definition
  - Conformance Matrix (Business)
- Worksheets: Top-Level Design
  - Star
  - Dimension
  - Conformance Matrix