Conceptual Data Modeling

by David Haertzen

Module 0. About the Course (8 min)

Module 1. About the Course (6 min)

- *Introduction to Conceptual Data Modeling*
  - What is Data Modeling?
  - Why Build Data Models?
  - Goals and Objectives of Data Modeling
  - Data Modeling Benefits
  - Three Level Schema
    - Conceptual Data Modeling
    - Logical Data Modeling
    - Physical Data Modeling
  - Learn Modeling
- *UML – Unified Modeling Language*
- *Domain Modeling*
  - Domains
  - Domain Dependencies
  - Sub-Domain
  - Domain Model Exercise & Review
- *Class Modeling*
  - Objects and Classes
  - Associations
  - Associations Multiplicity
  - Connectivity and Cardinality
  - Existence and Optionality
  - Navigability
  - Generalization/Specialization
  - Inheritance
  - Composition
  - Aggregation
  - Properties
  - Derived Data
  - Class Model Exercise & Review
- *Conceptual Data Modeling Basic Methodology*
  - Preparing for Conceptual Data Modeling
  - Introduction
  - CDM Steps
  - UML Class Model Levels

Module 2. Conceptual Data Modeling Methodology Part 1 (58 min)

- *Phase 1: Understanding the Business*
  - Steps Overview
  - Determine Scope and Purpose
    - What, Why, and How To
    - Brainstorm and Validate
  - Identify Business Capabilities
    - What are Business Capabilities?
    - Analyze Business Capabilities
    - Capability Process Hierarchy
    - APQC Process Classification

    - Identify Business Processes and Tasks
        - What are Business Processes and Tasks?
        - Decompose to Business Processes
    - Identify Data Requirements
        - What are Data Requirements?
        - How to Identify Data Requirements?
        - SIPOC Template
        - SIPOC Example
    - Learn by Doing (Phase 1 Case Study Exercise)
- *Phase 2: Modeling Domains*
    - Steps Overview
    - Identify Candidate Domains
        - Kipling Questions and Universal Domains
        - Research
        - Domain Identification Group Session
        - Brainstorm Candidate Domains
        - SIPOC Example
        - Who, Where and When Exercise & Review
        - What, Why and How Exercise & Review
        - Measurements Exercise & Review
        - Consolidated Whiteboard
    - Validate Domains
        - Domain Validation Group Session
        - Domain Validation Exercise & Review
        - Example Domains
        - Naming Domains
    - Build Domain Dependency Hierarchies
        - Domain Dependency Hierarchy Examples
        - Parties and Party Roles Example
    - Refine Domain Definitions
        - Domain Definition Description
        - Domain Definition Examples
    - Learn by Doing (Phase 2 Case Study Exercise)

Module 3. Conceptual Data Modeling Methodology Part 2 (65 min)

- *Phase 3: Modeling Classes*
    - Steps Overview
    - Identify Candidate Classes
        - Kipling Questions and Universal Classes
        - Finding Classes
        - Class Identification Group Session
        - SIPOC
        - Validated Domains
        - Exercises & Review
    - Validate Classes
        - Locations Exercise & Review
        - Orders Exercise & Review
        - Parties, Relationships, Roles Exercise & Review
        - Naming Classes
    - Build Class Inheritance Hierarchies
        - Parties Exercise & Review

        - Contact Point Exercise & Review
        - Order Exercise & Review
    - Refine Class Definitions
        - Class Definition Description
        - Example Data – Object Models
        - Class Definition Notes
        - Class Definition Exercise & Review
    - Learn by Doing (Phase 2 Case Study Exercise)
- *Phase 4: Modeling Associations*
    - Steps Overview
    - Identify Candidate Associations
        - Introduction
        - Candidate Associations Exercise & Review
    - Validate Associations
        - Introduction
        - Validate Associations Exercise & Review
    - Determine Association Type and Multiplicity
        - Introduction
        - Determine Association Multiplicity
        - Aggregation
        - Composition
        - Type and Multiplicity Exercise & Review
    - Identify Association Verb Phrases
        - Introduction
        - Verb Phrase Exercise & Review
    - Learn by Doing (Phase 4 Case Study Exercise)

Module 4. Conceptual Data Modeling Methodology Part 3 (32 min)

- *Phase 5: Modeling Properties*
    - Steps Overview
    - Identify Candidate Properties
        - Introduction
        - Product Properties Exercise & Review
    - Select Properties
        - Introduction
        - Select Product Properties Exercise & Review
    - Refine Properties
        - Introduction
        - Refine Property Names
        - Building Names
        - Prime Word Examples
        - Modifier Word Examples
        - Class Word Examples
        - Product Properties Naming Exercise & Review
        - Business Definitions of Properties
        - Property Format
    - Resolve Class Inheritance Hierarchies
        - Introduction
        - Order Line Example – First Cut
        - Order Line Example – Questions
        - Order Line Example – Conclusion

    - Learn by Doing (Phase 5 Case Study Exercise)
- *Creating Deliverables*
    - Workflow
    - Tooling
    - Presenting the Deliverables
- *In Conclusion*