

## Course Title:

### Data Modeling and Design Specialist Exam by DAMA

#### (2-Day Course)

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## Prerequisites:

This is a theoretical and foundational course focused on the **Data Modeling & Design** knowledge area from the **DAMA-DMBOK2 framework**. While **no hands-on modeling or software implementation** is included, the following prerequisites apply:

- **Must have appeared for the CDMP Data Management Fundamentals exam and obtained at least a 70% pass score**
  - Basic understanding of core data management principles as defined in DAMA-DMBOK2
  - Familiarity with data modeling vocabulary and types of data models (conceptual, logical, physical)
  - Comfort with data abstraction, normalization, and relational principles
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### Day 1: Foundations of Data Modeling and Core Concepts

#### Module 1: Introduction to Data Modeling

- Definition and Importance of Data Modeling
- Business Drivers
- Goals and Principles of Data Modeling

#### Module 2: Types of Data to be Modeled

- Category Information
- Resource Information
- Business Event Information
- Detailed Transactional (Big) Data
- Three Different Types of Data models

#### Module 3: Core Data Modeling Components

- Entities and Entity Types



- Relationships and Cardinality (Unary, Binary, Ternary)
- Foreign Keys and Constraints
- Attributes and Identifiers (Keys)
- Domains and Data Types

## **Module 4: Data Modeling Schemes**

- Overview of Six Schemes:
    - Relational
    - Dimensional
    - Object-Oriented (UML)
    - Fact-Based (ORM and FCO-IM)
    - Time-Based (Data Vault, Anchor Modeling)
    - NoSQL (Document, Graph, Column, Key-Value)
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## **Day 2: Advanced Data Modeling Practices and Techniques**

### **Module 5: Data Model Levels of Detail**

- Conceptual Data Models (CDM)
- Logical Data Models (LDM)
- Physical Data Models (PDM)
- Canonical Models and Views
- Partitioning and Denormalization

### **Module 6: Advanced Modeling Techniques**

- Normalization (1NF to 5NF, BCNF)
- Abstraction: Generalization and Specialization
- Supertype and Subtype Relationships
- Associative Entities and Many-to-Many Relationships

### **Module 7: Data Modeling Activities**

- Planning for Data Modeling
- Building Models (Conceptual, Logical, Physical)
  - Forward Engineering Approach
  - Reverse Engineering Overview
- Reviewing and Maintaining Models
- Deliverables: Diagrams, Definitions, Lineage, and Metadata

### **Module 8: Tools, Techniques, and Best Practices**

- Data Modeling Tools and Notations (IE, UML, ORM, etc.)
- Naming Conventions and Model Patterns



## **Module 9: Data Model Governance**

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### **Assessment and Wrap-up**

- Practice Exam Questions (aligned to DAMA Specialist level)
- Exam Tips for Data Modeling and Design Specialist Exam
- Summary of Key Concepts