Data Modelling and Design

Oracle Database

DURATION	MODULES	COURSE CODE
2 Days	**4 Lectures**	**—**

Course Overview

After completing this course, you should be able to: Introduce Data Modeling Create the Entity-Relationship Model Perform Normalization Design and Implement Data Models

What You Will Learn

Introduction to Modeling

- Objectives
- Why Model?
- Business Model Types and Modeling Approach
- Which Model Comes First?
- Project Phases and Model Transitions
- Gather Requirements
- General Business Model Terminology
- Function Model Terminology
- Hierarchical and Process Representations
- Information Model Terminology
- Intersect Models (Part I)
- Intersect Models (Part II)
- Intersect Models (Part III)
- Summary
- Practice

Create the Entity-Relationship Model

- Objectives
- Identifying Entities
- Entity Instances
- Identifying Attributes
- Validating Entities and Attributes

- Identifying Relationships
- Validating Relationships
- Relationship Types
- Relationship Examples
- Uniquely Identifying Entity Instances
- Alternative Unique Identifiers
- Refactoring Attributes as Entities
- Resolving Many-to-Many Relationships
- Supertype-Subtype Entities
- Arc Relationships
- Other Business Constraints
- Validating Unique Identifiers
- Master-Detail, Classification, and Basket Patterns
- Hierarchy and Chain Patterns
- Matrix and Network Patterns
- Snowflake Pattern
- Fan Trap Pattern
- Summary
- Practice

Normalization

- Objectives
- Relational Database Principles
- Normalization
- 0NF Challenge
- 0NF Transition
- 1NF Challenge
- 0NF to 1NF Transition
- 2NF Challenge
- 2NF to 3NF Transition
- 3NF Challenge
- 2NF to 3NF Transition
- Final 3NF Verification
- Entity Relationship Representation
- Summary
- Practice

Design and Implement Data Models

- Objectives
- From Analysis to Design to Implementation
- Physical Data Formats
- Analysis to Design Transition
- Entity to Table Model Transition
- Implementing Relationships
- Implementing Arc Relationships

- Single Table Subtype-Supertype Implementation
- Joined Subtype-Supertype Implementation
- Table Per Subtype Implementation
- Denormalization
- Denormalization Examples
- Entity to Unified Modeling Language (UML) Class Model Transition
- Implementing Data Model as a Relational Database
- Implementing UML Class Model as Java Classes
- Implementing Data Model as XML
- Other Data Model Uses and Implementations
- Summary
- Practice