Foundations of Data Modeling and Design Using IDERA ER/Studio (formerly Embarcadero ER/Studio)

Course Summary

Description

The purpose of this course is to provide the student with the necessary tools to create a logical business model and accompanying physical model and relational database schema using sound modeling theory, applied using IDERA ER/Studio.

Objectives
At the end of this course, students will be able to:

- Apply logical data modeling fundamentals in isolation of a proprietary tool.
- Understand how IDERA ER/Studio is used to expand upon the fundamentals while providing an opportunity for high quality standards-based model development.
- Apply database design fundamentals and standards for a variety of database engines.
- Understand how IDERA ER/Studio is used as an aid to the database administrator for database maintenance and development tasks.

Topics

- Introduction to Database Modeling and Database Design
- Logical Modeling
- Model Object Documentation
- Model Audit and Validation
- Model Presentation
- Advanced Modeling
- Physical Modeling and Database Design
- Building and Maintaining a Database
- Extended Modeling Functions

Audience

Data modelers, data architects, business analysts, application builders, DBA's, and end users who will be participating in data modeling and database design, including those who may not be using ER/Studio, but do require an understanding of the process and fundamentals will find this course beneficial.

Prerequisites

No previous data processing experience is necessary. Familiarity with Microsoft Windows is recommended.

Duration

Four days

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Course Outline

I. Introduction to Data Modeling and Database Design
   A. Why we data model and methodologies
   B. Conceptual, logical, and physical modeling
   C. Critical success factors for a modeling project

II. Logical Modeling
   A. Model building blocks, components, standards
   B. Build entities, attributes
   C. Understand unique identifiers and access concepts
   D. Keys – Primary, Foreign, Alternate, Surrogate
   E. Build and edit relationships
   F. Optionality, cardinality
   G. Understand and normalize the model
   H. Extended data typing and metadata

III. Model Object Documentation
   A. Model notation, definitions and descriptions
   B. Extended data typing
   C. Metadata creation and standards

IV. Model Audit and Validation
   A. Ensuring syntactical completeness
   B. Ensuring conceptual completeness
   C. Practical approach to model auditing

V. Model Presentation
   A. Sub-models – business dimensions within a model
   B. Diagram Displays - organizing views in a model
   C. Model Object Reporting
   D. Model printing

VI. Advanced Modeling
   A. Understand complex relations
   B. Understand modeling for history
   C. Understand referential integrity
   D. Resolve many to many relationships
   E. Build sub-type / entity type hierarchies
   F. Build recursive relationships
   G. Independent attributes

VII. Physical Modeling and Database Design
   A. Logical/Physical model implementation considerations
   B. How to define physical properties
   C. Referential integrity constraints
   D. Implementation options for maintaining referential integrity
   E. Triggers and stored procedures

VIII. Building and Maintaining a Database
   A. Physical model forward engineering
   B. Database reverse engineering
   C. Comparing a model to a database
   D. Modifying an existing database through the model
   E. ISQL Functions

IX. Macros and script production
   A. History recording and reporting
   B. Macros
   C. Domains
   D. Custom Datatypes and application