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Updates:

Database Design

5-4
Understanding CRUD Requirements

ORACLE ACADEMY

CRUD analysis ties data modeling to business functions. Although functional modeling is not covered in this course, the business functions and processes that the client describes will operate on the data. CRUD analysis checks that all the appropriate operations are possible. This is a good tool to check for completeness and proper scope of the data model.

Objectives

This lesson covers the following objectives:

- Create ER models that reflect all business rules gathered during the interview process
- Identify the create, retrieve, update, and delete (CRUD) requirements of the business
- Validate your ER model by performing a CRUD analysis

Purpose

- From the business scenarios that you develop and the list of business rules that you identify during client interviews, you will build the ERD.
- The ERD is the conversation tool between the consultant and the client, and it is also the blueprint for the DBA who will eventually build the database.
- You need a way to check that you haven't missed any entities or relationships in your data model.
- You also want to make sure that you haven't modeled anything that the business does not require.
- CRUD analysis will help you do this.

Consultant: One who gives expert or professional advice.

CRUD Analysis

- A good way to validate an ERD is to do a CRUD analysis on it.
- CRUD is an acronym for create, retrieve, update, delete.
- These are the four basic functions (or operations) that a database allows.
- Part of checking a data model for completeness and accuracy is making sure that all the CRUD functions specified by the business scenario and the business rules are represented in the ERD.

Functions: Used to perform calculations on data, modify individual data items, manipulate output for groups of rows, format dates and numbers for display, convert column data types, etc.

CRUD Analysis—Create Function

- During the client interview, and while writing the business scenarios and rules, look for keywords like:
  - INPUT, ENTER, LOAD, IMPORT, RECORD, & CREATE
- These all indicate that a record is created in the database at this time.
- Review the requirements for these keywords.
- Does your data model account for all of these functions?

"Whenever we get a new customer, we take down basic information (name, address, email) and assign an ID." (CREATE)

CRUD Analysis—Retrieve Function

- During the client interview, and while writing the business scenarios and rules, look for keywords like:
  - VIEW, REPORT, BRING UP, PRINT, FIND, READ, & LOOK UP
- These all point to retrieving information from the database.
- Review the requirements for these keywords.
- Does your data model account for all these functions?

"We'd like to print out a list of the customers whose account is in arrears." (RETRIEVE)

CRUD Analysis—Update Function

- During the client interview, and while writing the business scenarios and rules, look for keywords like:
  - CHANGE, MODIFY, ALTER, & UPDATE
- These all point to updating information that is already in the database.
- Review the requirements for these keywords.
- Does your data model account for all these functions?

"When a customer pays their account, we alter their record by modifying the outstanding balance" (UPDATE)

CRUD Analysis—Delete Function

- During the client interview, and while writing the business scenarios and rules, look for keywords like:
  - DISCARD, REMOVE, TRASH, PURGE, & DELETE
- These all point to deleting information that is already in the database.
- Review the requirements for these keywords.
- Does your data model account for all these functions?

"A number of our customers were small businesses that were hit hard by the recession. They went out of business. We deleted them from our current records." (DELETE)

CRUD Validation

- Performing a CRUD analysis on your data model helps you check for scope and completeness.
- If you have a business rule that has no entity to CRUD against, then your data model may be incomplete.
- Similarly, if you have entities in your ERD that are not touched by any CRUD function (no business rule creates, retrieves, updates, or deletes from it), then you may not need that entity in your model.

Terminology

Key terms used in this lesson included:

- Consultant
- CRUD analysis
- Functions

Summary

In this lesson, you should have learned how to:

- Create ER models that reflect all business rules gathered during the interview process
- Identify the create, retrieve, update, and delete (CRUD) requirements of the business
- Validate your ER model by performing a CRUD analysis


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