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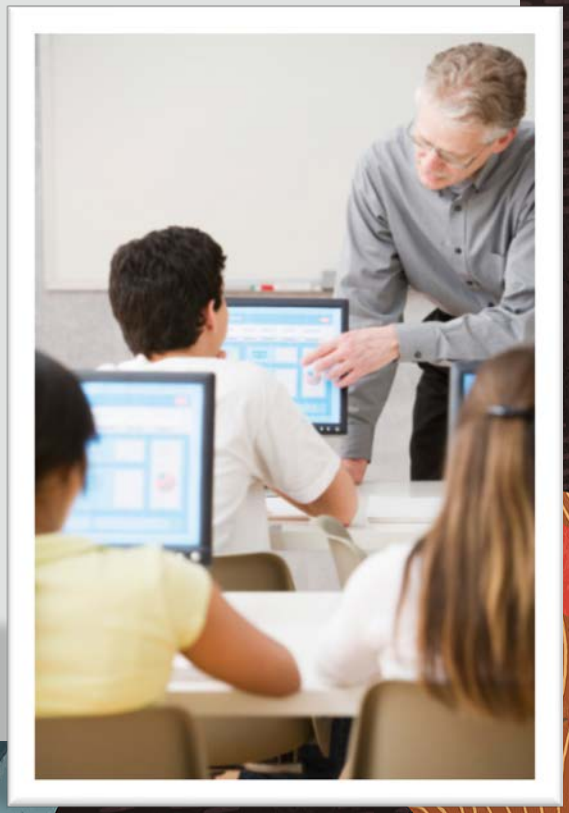
Database Programming with SQL

5-3

Conditional Expressions



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Objectives

This lesson covers the following objectives:

- Compare and contrast the DECODE and CASE functions
- Construct and execute a SQL query that correctly uses the DECODE and CASE functions
- Construct and execute two methods for implementing IF-THEN-ELSE conditional logic

Purpose

- Being able to make decisions is essential in data modeling
- Modelers have to decide which business functions need to be modeled and which do not
- The data-modeling process requires that designers analyze information to identify entities, resolve relationships, and select attributes
- A typical decision could be:
  - IF a business needs to track data over time,
    THEN time may need to be an entity or
    ELSE time should be an attribute

How Functions are Evaluated

- This decision-making process in programming is not much different from the process that we use in everyday life
- Think of the last time you had to make an if-then-else kind of decision
- IF I get my homework done before 9:00 p.m., I can watch television, ELSE I can't watch television
- In SQL, these kinds of choices involve conditional-processing methods
- Knowing how to use conditional processing makes decision making to get the data you want easier

Conditional Expressions

- The two conditional expressions are CASE and DECODE
- You have already studied NULLIF, which is logically equivalent to the CASE expression in that CASE compares two expressions
- NULIF compares two expressions, and if the two expressions are equal, then return null; if they are not equal, then return the first expression

Conditional Expressions

- There are two sets of commands or syntax that can be used to write SQL statements:
  - ANSI/ISO SQL 99 compliant standard statements
  - Oracle proprietary statements
- The two sets of syntax are very similar, but there are a few differences
- In this course, you will learn to use both sets of SQL statements, but the use of ANSI/ISO SQL 99 syntax is recommended

Conditional Expressions

- CASE and DECODE are examples of one of these differences
- CASE is an ANSI/ISO 99 SQL 99 compliant statement
- DECODE is an Oracle Proprietary statement
- Both statements return the same information using different syntax

CASE Expression

- The CASE expression basically does the work of an IF-THEN-ELSE statement
- Data types of the CASE, WHEN, and ELSE expressions must be the same
- The syntax for a CASE expression is:

```
CASE expr WHEN comparison_expr1 THEN return_expr1
          [WHEN comparison_expr2 THEN return_expr2
           WHEN comparison_exprn THEN return_exprn
           ELSE else_expr]
END
```

CASE Syntax

- The query checks the department_id
  - IF it is 90, then return 'Management'
  - IF it is 80, then return 'Sales'
  - IF it is 60, then return 'It'
  - ELSE return 'Other dept.'

```
SELECT last_name,
CASE department_id
   WHEN 90 THEN 'Management'
   WHEN 80 THEN 'Sales'
   WHEN 60 THEN 'It'
   ELSE 'Other dept.'
END AS "Department"
FROM employees;
```

LAST_NAME	Department
King	Management
Kochhar	Management
De Haan	Management
Whalen	Other dept.
Higgins	Other dept.
Gietz	Other dept.
Zlotkey	Sales
Abel	Sales
Taylor	Sales
Grant	Other dept.
Mourgos	Other dept.
Rajs	Other dept.
Davies	Other dept.
Matos	Other dept.
Vargas	Other dept.
Hunold	It
Ernst	It
Lorentz	It
Hartstein	Other dept.
Fay	Other dept.

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DECODE Expression

- The DECODE function evaluates an expression in a similar way to the IF-THEN-ELSE logic
- DECODE compares an expression to each of the search values
- The syntax for DECODE is:

```
DECODE(columnl|expression, search1, result1
        [, search2, result2,...,]
        [, default])
```

- If the default value is omitted, a null value is returned where a search value does not match any of the values

DECODE Expression

- Examine the example:

```
SELECT last_name,
  DECODE(department_id,
    90, 'Management',
     80, 'Sales',
    60, 'It',
    'Other dept.')
AS "Department"
FROM employees;
```

- This query returns exactly the same results as the previous CASE example, but using different syntax

LAST_NAME	Department
King	Management
Kochhar	Management
De Haan	Management
Whalen	Other dept.
Higgins	Other dept.
Gietz	Other dept.
Zlotkey	Sales
Abel	Sales
Taylor	Sales
Grant	Other dept.
Mourgos	Other dept.
Rajs	Other dept.
Davies	Other dept.
Matos	Other dept.
Vargas	Other dept.
Hunold	It
Ernst	It
Lorentz	It
Hartstein	Other dept.
Fay	Other dept.

Terminology

Key terms used in this lesson included:

- CASE
- Conditional expression
- DECODE

Summary

In this lesson, you should have learned how to:

- Compare and contrast the DECODE and CASE functions
- Construct and execute a SQL query that correctly uses the DECODE and CASE functions
- Construct and execute two methods for implementing IF-THEN-ELSE conditional logic


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