Database Programming with PL/SQL
5-1: Introduction to Explicit Cursors
Practice Activities

Vocabulary

Identify the vocabulary word for each definition below:

Explicit Cursor	Declared by the programmer for queries that return more than one row
Cursor	A label for a context area or a pointer to the context area
CLOSE	Disables a cursor, releases the context area, and undefines the active set
Context Area	An allocated memory area used to store the data processed by a SQL statement
Implicit Cursor	Defined automatically by Oracle for all SQL DML statements, and for SELECT statements that return only one row
OPEN	Statement that executes the query associated with the cursor, identifies the active set, and positions the cursor pointer to the first row
FETCH	Statement that retrieves the current row and advances the cursor to the next row either until there are no more rows or until a specified condition is met
Active Set	The set of rows returned by a multiple row query in an explicit cursor operation

Try It / Solve It

1. In your own words, explain the difference between implicit and explicit cursors.

   Implicit cursors are automatically created by Oracle for SQL statements that return a single row, hey are managed automatically by Oracle, and the user doesn't have to worry about opening, fetching, or closing them.

   Explicit cursors are declared by the programmer when a query is expected to return more than one row. The programmer has to explicitly open, fetch, and close the cursor.

2. Which SQL statement can use either an explicit or an implicit cursor, as needed?

   The SELECT statement can use either an explicit or implicit cursor

3. List two circumstances in which you would use an explicit cursor.

When a query returns multiple rows and you need to process each row individually in your PL/SQL block.
When you need to fetch rows conditionally or handle errors in a more controlled manner, such as with a FETCH statement that can be used within a loop.

4. Exercise using CURRENCIES tables:

   A. Write a PL/SQL block to declare a cursor called currencies_cur. The cursor will be used to read and display all rows from the CURRENCIES table. You will need to retrieve currency_code and currency_name, ordered by ascending currency_name. B. Add a statement to open the currencies_cur cursor.

   C. Add variable declarations and an executable statement to read ONE row through the currencies_cur cursor into local variables.

   D. Add a statement to display the fetched row, and a statement to close the currencies_cur cursor.

   E. Run your block to confirm that it works. It should display: AFA Afghani.

   F. Your code so far displays only one row. Modify your code so that it fetches and displays all the rows, using a LOOP and EXIT statement. Test your modified block. It should fetch and display each row in the CURRENCIES table. If it doesn't, check that your EXIT statement is in the correct place in the code.

   G. Write and test a PL/SQL block to read and display all the rows in the COUNTRIES table for all countries in region 5 (South America region). For each selected country, display the country_name, national_holiday_date, and national_holiday_name. Display only those countries having a national holiday date that is not null. Save your code (you will need it in the next practice).

5. Identify three guidelines for declaring and using explicit cursors.

6. Write a PL/SQL block to read and display the names of world regions, with a count of the number of countries in each region. Include only those regions having at least 10 countries. Order your output by ascending region name.