MES College of Engineering Pune-01

Department of Computer Engineering

Name of Student:	**Class:**
Semester/Year:	**Roll No:**
Date of Performance:	**Date of Submission:**
Examined By:	**Experiment No: Part A-07**

PART: A) ASSIGNMENT NO: 07

AIM: **Cursors:** (All types: Implicit, Explicit, Cursor FOR Loop, Parameterized Cursor)

OBJECTIVES:

- To develop basic, intermediate and advanced Database programming skills.
- To learn the concept of procedural language.
- To study cursor programming and different cursor operations.

APPRATUS:

- Operating System recommended: 64-bit Open source Linux or its derivative
- Database: MySQL/ Oracle 11g Database.

THEORY:

A. PL/SQL Cursor

- When an SQL statement is processed, Oracle creates a memory area known as context area.
- A cursor is a pointer to this context area.
- It contains all information needed for processing the statement.
- In PL/SQL, the context area is controlled by Cursor.
- A cursor contains information on a select statement and the rows of data accessed by it.
- A cursor can hold more than one row, but can process only one row at a time. The set of rows the cursor holds is called the active set.

PL/SQL Implicit Cursors

- The implicit cursors are automatically generated by Oracle while an SQL statement is executed, if you don?t use an explicit cursor for the statement.
- These are created by default to process the statements when DML statements like INSERT, UPDATE, DELETE etc. are executed.

- Orcale provides some attributes known as Implicit cursor?s attributes to check the status of DML operations.

  %FOUND, %NOTFOUND, %ROWCOUNT and %ISOPEN.

Attributes	Return Value
%FOUND **SQL%FOUND**	The return value is TRUE, if the DML statements like INSERT, DELETE and UPDATE affect at least one row and if SELECT ….INTO statement return at least one row.
	The return value is FALSE, if DML statements like INSERT, DELETE and UPDATE do not affect row and if SELECT….INTO statement do not return a row
%NOTFOUND **SQL%NOTFOUND**	The return value is FALSE, if DML statements like INSERT, DELETE and UPDATE at least one row and if SELECT ….INTO statement return at least one row.
	The return value is TRUE, if a DML statement likes INSERT, DELETE and UPDATE do not affect even one row and if SELECT ….INTO statement does not return a row.
%ROWCOUNT **SQL%ROWCOUNT**	Return the number of rows affected by the DML operations INSERT, DELETE, UPDATE, SELECT.
%ISOPEN **SQL%ISOPEN**	It always returns FALSE for implicit cursors, because the SQL cursor is automatically closed after executing its associated SQL statements.

PL/SQL Explicit Cursors

- The Explicit cursors are defined by the programmers to gain more control over the context area.
- These cursors should be defined in the declaration section of the PL/SQL block. It is created on a SELECT statement which returns more than one row.
- General Syntax for creating a cursor:

  CURSOR cursor_name **IS** select_statement;;

- Steps:
  1. Declare the cursor to initialize in the memory.
  2. Open the cursor to allocate memory.
  3. Fetch the cursor to retrieve data.
  4. Close the cursor to release allocated memory.

❖ **1) Declare the cursor:**

It defines the cursor with a name and the associated SELECT statement.

CURSOR name **IS** SELECT statement;

- **2) Open the cursor:**

It is used to allocate memory for the cursor and make it easy to fetch the rows returned by the SQL statements into it.

OPEN cursor_name;

- **3) Fetch the cursor:**

It is used to access one row at a time. You can fetch rows from the above-opened cursor as follows:

FETCH cursor_name INTO variable_list;

- **4) Close the cursor:**

It is used to release the allocated memory. The following syntax is used to close the above-opened cursors.

CLOSE cursor_name;

IMPLEMENTATION:

Write a PL/SQL block of code using parameterized Cursor that will merge the data available in the newly created table N_Roll Call with the data available in the table O_RollCall. If the data in the first table already exist in the second table then that data should be skipped.

Note: Instructor will frame the problem statement for writing PL/SQL block using all types of Cursors in line with above statement.

CONCLUSION:

QUESTIONS:

1. What are different types of cursor? Explain each type with syntax.
2. What are the different attributes of cursor?
3. What is the parameterized cursor?