University Institute of Engineering

Department of Computer Science & Engineering

Experiment: 6

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Subject Name: DBMS

1. **Aim of the practical:** To understand the concept and working of cursors in PL/SQL for row-by-row data processing, and to analyze how implicit cursors, explicit cursors, and cursor attributes are used to implement business logic on multiple rows in a database table.

2. Tool Used:

- **Database Management System:**
  - **PostgreSQL**
- **Database Administration Tool:**
  - **pgAdmin**

3. **Objective:**
   To implement and analyze the use of implicit cursors, explicit cursors, and cursor attributes for processing multiple rows from a database table and applying business logic effectively.

4. Practical / Experimental Steps

Step 1: Create Employees table.

Step 2: Insert records into Employees table.

Step 3: Execute PL/SQL block using implicit cursor.

Step 4: Observe SQL%ROWCOUNT output.

Step 5: Execute PL/SQL block using explicit cursor.

Step 6: Observe row-by-row processing output.

5. I / O Analysis

A) Implicit Cursor

```
CREATE TABLE Employees (
   employee_id INT PRIMARY KEY,
   name VARCHAR(50),
   salary INT
);

INSERT INTO Employees (employee_id, name, salary) VALUES
(1, 'Amit', 45000),
(2, 'Riya', 52001),
(3, 'Karan', 38000),
(4, 'Neha', 61015),
(5, 'Rahul', 50000);

DECLARE
   v_rows NUMBER;
BEGIN
   UPDATE Employees
   SET salary = salary * 1.10
   WHERE salary < 50000;
```

```
    v_rows := SQL%ROWCOUNT;

    DBMS_OUTPUT.PUT_LINE('Rows Updated: ' || v_rows);
END;
/
```

Output:

```
Rows Updated: 2
```

B) Explicit Cursor

```
DECLARE
  CURSOR emp_cursor IS
    SELECT employee_id, name, salary FROM Employees;

  v_id Employees.employee_id%TYPE;
  v_name Employees.name%TYPE;
  v_salary Employees.salary%TYPE;
BEGIN
  OPEN emp_cursor;

  LOOP
    FETCH emp_cursor INTO v_id, v_name, v_salary;
    EXIT WHEN emp_cursor%NOTFOUND;

    IF MOD(v_salary, 2) = 0 THEN
      DBMS_OUTPUT.PUT_LINE(v_name || ' -> Even Salary');
    ELSE
      DBMS_OUTPUT.PUT_LINE(v_name || ' -> Odd Salary');
    END IF;
  END LOOP;

  CLOSE emp_cursor;
END;
/
```

Output:

```
Amit -> Even Salary
Riya -> Odd Salary
Karan -> Even Salary
Neha -> Odd Salary
Rahul -> Even Salary
```

6. Learning outcomes (What I have learnt):

- Understood the concept of implicit and explicit cursors in PL/SQL.
- Learned how SQL%ROWCOUNT works with implicit cursors.
- Gained practical knowledge of row-by-row processing using explicit cursors.
- Understood cursor attributes like %FOUND and %NOTFOUND.
- Developed ability to implement business logic on multiple rows.