

Ex.No. 12

PL/SQL Cursors

Aim:

To manipulate data using PL/SQL cursors.

Cursor

A cursor is a temporary work area created in the system memory when a SQL statement is executed. A cursor contains information on a select statement and the rows of data accessed by it. This temporary work area is used to store the data retrieved from the database, and manipulate this data. A cursor can hold more than one row, but can process only one row at a time.

There are two types of cursors in PL/SQL. They are Implicit cursors and Explicit cursors.

1. Implicit cursors

These are created by default when DML statements like, INSERT, UPDATE, and DELETE statements are executed. Oracle provides few attributes called as implicit cursor attributes to check the status of DML operations. The cursor attributes available are %FOUND, %NOTFOUND, %ROWCOUNT, and %ISOPEN.

Implicit Cursor Attributes

- ✧ **%FOUND** - The return value is TRUE, if the DML statements like INSERT, DELETE and UPDATE affect at least one row or if SELECTINTO statement return at least one row.
- ✧ **%NOTFOUND** - The return value is FALSE, if DML statements affect at least one row or if SELECT. ...INTO statement return at least one row.
- ✧ **%ROWCOUNT** - Return the number of rows affected by the DML operations

2. Explicit cursors

They must be created when you are executing a SELECT statement that returns more than one row. Even though the cursor stores multiple records, only one record can be processed at a time, which is called as current row. When you fetch a row the current row position moves to next row.

There are four steps in using an Explicit Cursor.

Declaring Cursor :

```
CURSOR cursor_name IS select_statement;
```

Opening Cursor :

```
OPEN cursor_name;
```

Fetching Cursor :

```
FETCH cursor_name INTO variable-list/record-type;
```

Closing Cursor :

```
CLOSE cursor_name;
```

Explicit Cursor Attributes

- ✧ **%FOUND** - TRUE, if fetch statement returns at least one row.
- ✧ **%NOTFOUND** - TRUE, if fetch statement doesn't return a row.
- ✧ **%ROWCOUNT** - The number of rows fetched by the fetch statement.
- ✧ **%ISOPEN** - TRUE, if the cursor is already open in the program.

Q1. Write a PL/SQL Block, to update salaries of all the employees who work in deptno 20 by 15%. If none of the employee's salary are updated display a message 'None of the salaries were updated'. Otherwise display the total number of employee who got salary updated.

Declare

```
num number(5);
```

Begin

```
update emp set sal = sal + sal*0.15 where deptno=20;
```

```
if SQL%NOTFOUND then
```

```
    dbms_output.put_line('none of the salaries were updated');
```

```
elsif SQL%FOUND then
```

```
    num := SQL%ROWCOUNT;
```

```
    dbms_output.put_line('salaries for ' || num || 'employees are  
updated');
```

```
end if;
```

End;

Q2. Using cursors, write a PL/SQL block to display Employee Number, Name and Department Number from the Emp database.

```
DECLARE
CURSOR C1 IS SELECT EMPNO,ENAME ,DEPTNO FROM EMP;
EMPNUM EMP.EMPNO%TYPE;
EMPNAME EMP.ENAME%TYPE;
DEPTNUM EMP.DEPTNO%TYPE;
BEGIN OPEN C1;
LOOP FETCH C1 INTO EMPNUM,EMPNAME,DEPTNUM;
if c1%notfound then
    exit;
else
    dbms_output.put_line(EMPNUM||'           '||EMPNAME||'
'||DEPTNUM);
end if;
END LOOP;
end;
```

Q3. Using cursors, write a PL/SQL block to find the name and salary of first five highly paid employees.