18.04.2020 Computer Science 2nd year

Subject :- 'DBMS'

CURSOR in PL/SQL

oracle creates a memory area, known as the context area, for Processing an SQL statement, which contain all the Information needed for processing the Statement; for example, The number of rows processed, etc.

A cursor is a pointer to this context area. PL/SQL controls the context area through a cursor. A cursor hold the rows (one or more) returned by a SQL Statement. The set of row the cursor hold is referred to as the active set.

you can name a cursor so that it could be referred to in a program to fetch and process the rows returned by the SQL Statement, one at a time. there are two type of cursors -

⇒ Implicit cursor

⇒ Explicit cursor

Implicit cursor :-

Implicit cursor are automatically created by oracle whenever an SQL Statement is executed, when there is no explicit cursor

The following program will update the table and increase the salary of each customer by 500 and use the SQL%ROWCOUNT attribute to determine the number of row affected :-

```
DECLARE
    total_row number (2);
BEGIN
    UPDATE Customers
    SET Salary = Salary + 500;
    IF Sql% not found THEN
        dbms_output.put_line ('no customers
                               selected');
    ELSE IF Sql% found THEN
        total_rows := sql% row count;
        dbms_output.putline (total_rows || 'customers
                             Selected');
    END If;
    END
    /
```

When the above code is executed at the SQL Prompt, it produces the following result

```
6 customer selected
PL/SQL procedure successfully completed
```

If you check the records in customer table, you will find that the rows have been updated.

Select * From customers ;

Id	NAME	AGE	Address	Salary
1	Ramesh	32	Ahemdabad	2500.00
2	Khilan	25	Delhi	2000.00
3	Kaushik	23	Kota	2500.00
4	Chaitali	25	Mumbai	7000.00
5	Hardik	27	Bhopal	9000.00
6	Sikha	22	MP	5000.00

Explicit Cursors

Explicit cursors are programmer-defined cursors for gaining more control over the context area. An explicit cursor 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.

The syntax for creating an explicit cursor is :

```
CURSOR cursor_name IS Select_Statement ;
```

working with an explicit cursor includes the following steps :

1) Declaring the cursor for initializing the memory
2) ~~memory~~ opening the cursor for allocating the memory
3) Fetching the cursor for retrieving the data
4) Closing the cursor to release the allocated memory.

Declaring the Cursor

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

For example :-

```
C - Cestomer IS
  SELECT id, name, address FROM CUSTOMER;
```

Opening the cursor

Opening the cursor allocates the memory for the cursor and make it ready for fetching the row returned by the SQL statement into it. For example, we will open the above defined cursor as follow.

```
OPEN C- CUSTOMER;
```

Fetching the cursor

Fetching the cursor involves accessing one row at a time, For example we will fetch row from the above - opened cursor as follow

```
FETCH C- Customer INTO C- Id, C-name, C- address;
```

Closing the cursor

Closing the cursor means releasing the allocated memory

```
CLOSE C- customers;
```

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