

Advanced Explicit Cursor Concepts

Objectives

After completing this lesson, you should be able to do the following:

- Write a cursor that uses parameters
- Determine when a FOR UPDATE clause in a cursor is required
- Determine when to use the WHERE CURRENT OF clause
- Write a cursor that uses a subquery

Cursors with Parameters

Syntax

```
CURSOR cursor_name  
[(parameter_name datatype, ...)]  
IS  
select_statement;
```

- Pass parameter values to a cursor when the cursor is opened and the query is executed.
- Open an explicit cursor several times with a different active set each time.

Cursors with Parameters

Pass the department number and job title to the WHERE clause.

Example

```
DECLARE  
CURSOR emp_cursor  
(p_deptno NUMBER, p_job VARCHAR2) IS  
SELECT empno, ename  
FROM emp  
WHERE deptno = v_deptno  
AND job = v_job;  
BEGIN  
OPEN emp_cursor(10, 'CLERK');  
...
```

The FOR UPDATE Clause

Syntax

```
SELECT ...  
FROM ...  
FOR UPDATE [OF column_reference][NOWAIT];
```

- Explicit locking lets you deny access for the duration of a transaction.
- Lock the rows *before* the update or delete.

The FOR UPDATE Clause

Retrieve the employees who work in department 30.

Example

```
DECLARE  
CURSOR emp_cursor IS  
SELECT empno, ename, sal  
FROM emp  
WHERE deptno = 30  
FOR UPDATE OF sal NOWAIT;
```

The WHERE CURRENT OF Clause

Syntax

```
WHERE CURRENT OF cursor ;
```

- Use cursors to update or delete the current row.
- Include the FOR UPDATE clause in the cursor query to lock the rows first.
- Use the WHERE CURRENT OF clause to reference the current row from an explicit cursor.

The WHERE CURRENT OF Clause

Example

```
DECLARE
CURSOR sal_cursor IS
  SELECT  sal
  FROM    emp
  WHERE   deptno = 30
  FOR UPDATE OF sal NOWAIT;
BEGIN
  FOR emp_record IN sal_cursor LOOP
    UPDATE emp
      SET   sal = emp_record.sal * 1.10
      WHERE CURRENT OF sal_cursor;
  END LOOP;
  COMMIT;
END;
```

Cursors with Subqueries

Example

```
DECLARE
CURSOR my_cursor IS
  SELECT t1.deptno, t1.dname, t2.STAFF
  FROM   dept t1, (SELECT deptno,
                        count(*) STAFF
                   FROM   emp
                   GROUP BY deptno) t2
  WHERE  t1.deptno = t2.deptno
  AND    t2.STAFF >= 5;
```

Summary

- You can return different active sets using cursors with parameters.
- You can define cursors with subqueries and correlated subqueries.
- You can manipulate explicit cursors with commands:
 - FOR UPDATE Clause
 - WHERE CURRENT OF Clause

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