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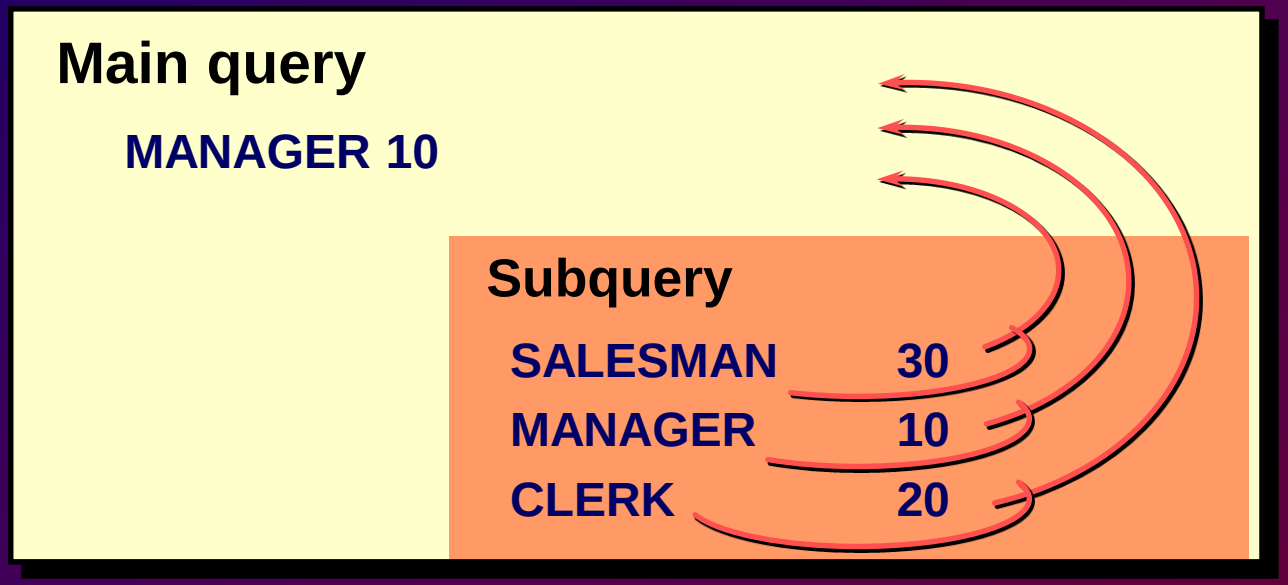
Multiple-Column Subqueries

Objectives

At the end of this lesson, you should be able to:

- Write a multiple-column subquery
- Describe and explain the behavior of subqueries when null values are retrieved
- Write a subquery in a FROM clause

Multiple-Column Subqueries



Main query compares **to** Values from a multiple-row and multiple-column subquery

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MANAGER 10

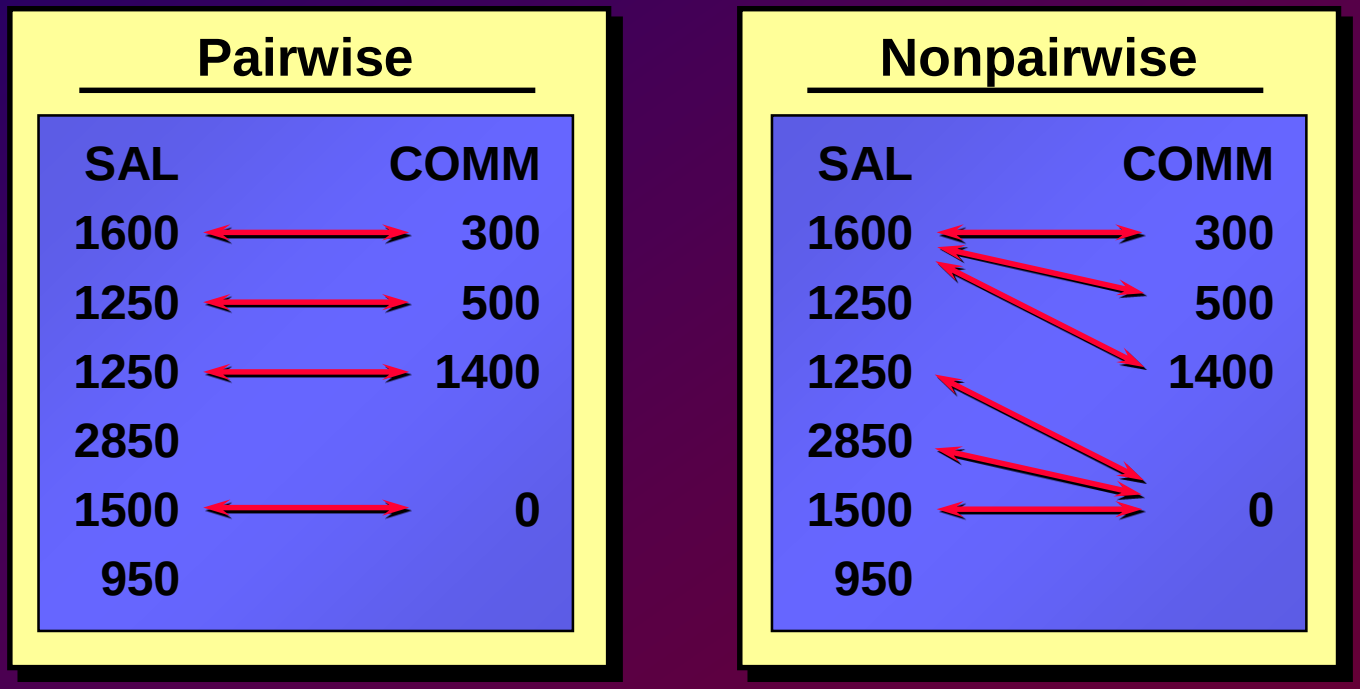
SALESMAN 30
MANAGER 10
CLERK 20

Using Multiple-Column Subqueries

Display the name, department number, salary, and commission of any employee whose salary and commission matches **both** the commission and salary of any employee in department 30.

```
SQL> SELECT   ename, deptno, sal, comm
  2  FROM     emp
  3  WHERE    (sal, NVL(comm,-1)) IN
  4                          (SELECT sal, NVL(comm,-1)
  5                           FROM   emp
  6                           WHERE  deptno = 30);
```

Column Comparisons



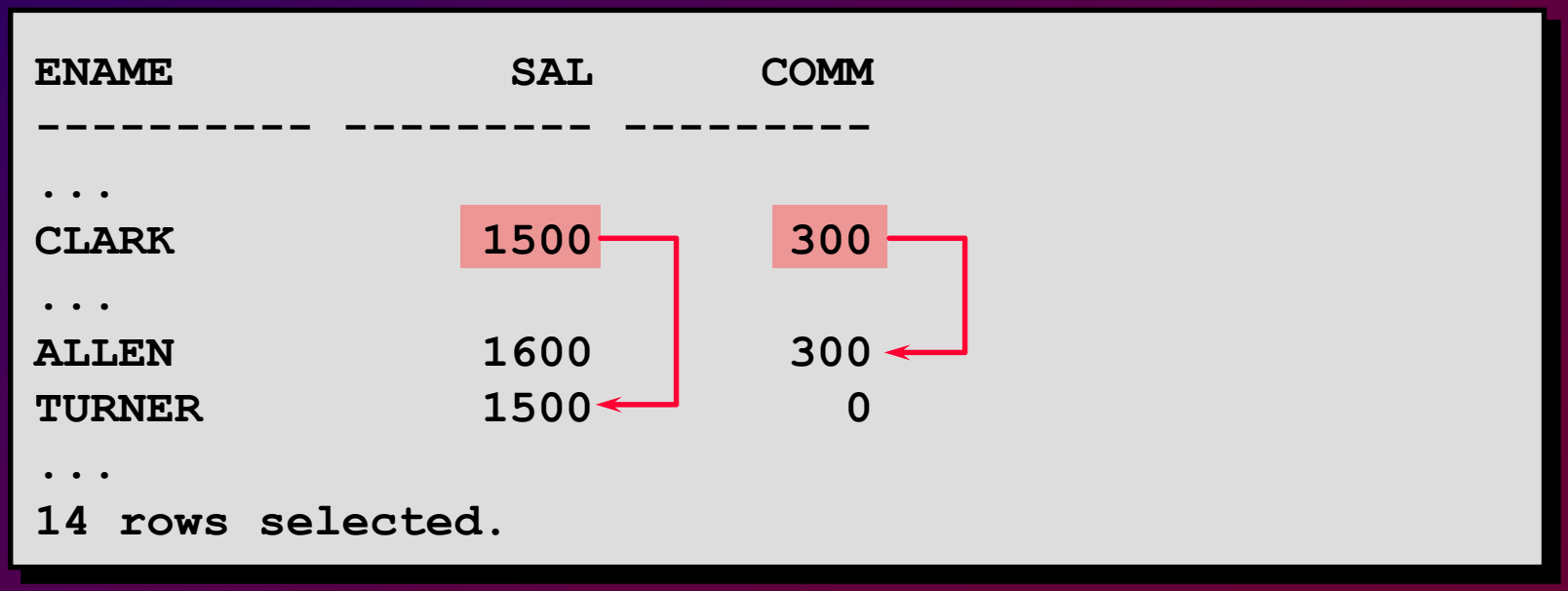
Nonpairwise Comparison Subquery

Display the name, department number, salary, and commission of any employee whose salary and commission matches the commission and salary of any employee in department 30.

```
SQL> SELECT   ename, deptno, sal, comm
  2  FROM     emp
  3  WHERE    sal IN          (SELECT sal
  4                           FROM   emp
  5                           WHERE  deptno = 30)
  6  AND
  7           NVL(comm,-1) IN (SELECT NVL(comm,-1)
  8                           FROM   emp
  9                           WHERE  deptno = 30);
```

Modifying the EMP Table

- Assume that salary and commission for Clark are modified.
- Salary is changed to $1500 and commission to $300.



```
ENAME                SAL       COMM
---------- --------- ---------
...
CLARK                1500        300
...
ALLEN                1600        300
TURNER               1500          0
...
14 rows selected.
```

Pairwise Subquery

```
SQL> SELECT   ename, deptno, sal, comm
  2  FROM     emp
  3  WHERE    (sal, NVL(comm,-1)) IN
  4                              (SELECT sal, NVL(comm,-1)
  5                               FROM   emp
  6                               WHERE  deptno = 30);
```

ENAME	DEPTNO	SAL	COMM
JAMES	30	950	
WARD	30	1250	500
MARTIN	30	1250	1400
TURNER	30	1500	0
ALLEN	30	1600	300
BLAKE	30	2850	

6 rows selected.

Nonpairwise Subquery

```
SQL> SELECT   ename,deptno, sal, comm
  2  FROM     emp
  3  WHERE    sal IN          (SELECT sal
  4                           FROM   emp
  5                           WHERE  deptno = 30)
  6  AND
  7           NVL(comm,-1) IN (SELECT NVL(comm,-1)
  8                            FROM   emp
  9                           WHERE  deptno = 30);
```

```
ENAME          DEPTNO        SAL       COMM
---------- ---------- ---------- ----------
JAMES              30        950
BLAKE              30       2850
TURNER             30       1500          0
CLARK              10       1500        300
...
7 rows selected.
```

Null Values in a Subquery

```
SQL> SELECT   employee.ename
  2  FROM     emp employee
  3  WHERE    employee.empno NOT IN
                          (SELECT manager.mgr
                           FROM   emp manager);

no rows selected.
```

Using a Subquery in the FROM Clause

```
SQL> SELECT  a.ename, a.sal, a.deptno, b.salavg
  2  FROM    emp a, (SELECT   deptno, avg(sal) salavg
  3                  FROM     emp
  4                  GROUP BY deptno) b
  5  WHERE   a.deptno = b.deptno
  6  AND     a.sal > b.salavg;
```

```
ENAME                SAL     DEPTNO      SALAVG
---------- --------- --------- ----------
KING                5000         10  2916.6667
JONES               2975         20       2175
SCOTT               3000         20       2175
...
6 rows selected.
```

Summary

- A multiple-column subquery returns more than one column.
- Column comparisons in a multiple-column comparisons can be pairwise or nonpairwise.
- A multiple-column subquery can also be used in the FROM clause of a SELECT statement.

Practice Overview

Creating multiple-column subqueries